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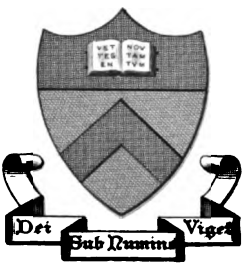

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MONTHLY CONSULAR AND TRADE REPORTS

APRIL-JUNE, 1908

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MONTHLY CONSULAR AND TRADE REPORTS

APRIL, 1908

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MONTHLY CONSULAR *and* TRADE REPORTS

Washington, D. C. APRIL, 1908 No. 331

FOREIGN COMMERCE.

MEXICO.

COMMERCIAL AND INDUSTRIAL CONDITIONS.

EXTENSIVE RESOURCES AND GENERAL DEVELOPMENT—UNITED STATES PRODUCTS IN DEMAND.

Special Agent Arthur B. Butman furnishes the following report on trade conditions in the Mexican Republic, with especial reference to the States of Vera Cruz, Jalisco, and San Luis Potosi:

The city of Vera Cruz has a population of 30,000, and is the chief port of entry of the Mexican Republic. It has a good harbor, well protected, with a minimum depth of 33 feet of water throughout, and flanked by fine stone docks.

Much labor, thought, and capital have during recent years been devoted by the municipality to the general advancement of this commercial Gulf city. Improvements in sanitation are gradually being accomplished; a system of sewerage has been introduced, with which the principal streets are already connected. The general health of the town is improving, the death rate having decreased considerably, as compared with two years ago. Many new buildings are under process of construction throughout the city, although, owing to the scarcity of carpenters, masons, and other artisans, slow progress is being made. Plans have already been accepted for the erection of a new railroad terminal station at an estimated cost of $6,000,000 (Mexican), and it is expected that the work will be in progress early in 1908. All railroads running into Vera Cruz will use the new terminal.

The industries of the city include cigar manufactories (the principal tobacco plantations of Mexico being situated in the State of Vera Cruz), soap factories, and a petroleum refinery with a capacity of 350,000 gallons per month, using crude oil from the United States.

COMMERCIAL ACTIVITY—READY-MADE CLOTHING.

A constant growth in the commercial activity of the port is shown. This is especially gratifying, since the most important advance has been in trade with the United States, although other countries enter into the progress. Cattle, lumber, foodstuffs, and machinery constitute the principal imports from the United States. England is the chief source of supply for textiles, followed by France and Spain, France furnishing a certain quantity of the finest qualities. In importations of chemicals, those of German manufacture head the list, being about twice in quantity those furnished by the United States.

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The trade with the United States in machinery and lumber is important, not less than 10,000,000 feet of lumber being annually received at this port. Regarding lumber for this market, I am informed that yellow pine is found to be the most desirable, affording best results under the prevailing climatic influences.

American ready-made clothing (women's) of the cheaper qualities should find a good market in Vera Cruz, the present supply being almost wholly furnished by France and Spain. Aside from black and white for women's skirts and waists, the favorite colors seem to be red and various shades of purple. All articles of women's wearing apparel carry a stronger appeal to the native buyer if adorned, more or less lavishly, with cheap laces and embroideries. France supplies the higher grades of women's headgear, but for the cheaper qualities a market for ready-trimmed hats from the United States might be found.

Men's ready-made clothing in the lighter weight woolen materials finds a good sale; also hats in felt, these being worn, like the native wool sombrero, during the entire year. Men's hats are at the present time principally furnished by English makers.

SHOE TRADE.

American shoes are on sale in various stores in Vera Cruz, but there are no exclusive shoe stores in the city and no dealers carrying American goods exclusively. Shoes form one of many lines of the retailer's stock in trade, and goods of Spanish, French, and American manufacture exhibited side by side individually win or lose the buyer, as his fancy may dictate. I find American-made shoes in good favor, but the price asked—$9.50 to $13.50 Mexican—being beyond what the masses are able to pay, restricts any considerable increase of trade in this city. Spain, our strongest foreign competitor, furnishes for this market a hand-made shoe of good workmanship which retails for less money than the American product.

Being situated within the Tropics, Vera Cruz offers a moderately large field for the sale of white canvas shoes for both sexes in Oxfords and bals. To meet the demands of this trade these shoes should be of good quality, well made, and priced at a medium figure.

STEAMSHIP LINE TO BRITISH COLUMBIA.

That Canada is alive to the status of Mexico's commerce and its future prospects is evinced by the recent establishment of the Canadian-Mexican Pacific Steamship Company, operating between British Columbia and ports on the west coast of Mexico. The inaugural boat of this line sailed from Vancouver on May 1 last with a cargo of lumber and coal and carried as a return cargo salt, tobacco and cigars, fruits, and ore. From the start the freight traffic of the line has increased. The last steamer arriving at the port of Salina Cruz carried its full cargo of 4,000 tons freight. The amount of interest shown in the enterprise in both this country and British Columbia may be said to be responsible for the success thus far obtained. Two boats of 4,000 tons each, capable of 12 knots an hour, are operated at present, with monthly sailings in each direction. Accommodations for passengers are provided to the number of 20 saloon and 100 intermediate, and the passage between Vancouver and Mazatlan is made in eight and one-half days.

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RESULTS OF CANADIAN ENTERPRISE.

Banana growing in Mexico is rapidly assuming importance. Recognizing this, the steamship company has installed special features of ventilation and a full modern equipment for facilitating the handling of fruit on its vessels. Canadian manufacturers and exporters are making a strenuous effort, since the inauguration of this line of steamers, to increase their sales in Mexico's markets. The merchants of the Republic are furnished at just as low or even lower prices than those previously proffered by American manufacturers, with the assurance of cheaper freight rates on the part of the Canadian competitors.

Formerly no appreciable trade relations existed between British Columbia and the west coast of Mexico, owing to the expense and attendant delays of rehandling and reshipment of freight at San Francisco, via which port goods were shipped. During the past six months, however, the exportation from Mexico of various fruits, hard woods, tobacco, and cigars has shown a considerable increase, while importations into the Republic from Canada, especially of agricultural implements, have assumed marked proportions.

CONDITION OF COFFEE AND SUGAR CROPS.

It is estimated that the exports of coffee from Mexico this year will be in the neighborhood of 50,000,000 pounds, and owing to the high prices the outlook for the planters is a very favorable one. The disadvantage of improper curing of the bean, which formerly prevailed in this country, has been done away with, and improved methods, embracing all modern appliances, are now in general use on all the large plantations. Better grades of coffee and ready sales at high prices have resulted. Recent reports from the coffee districts are to the effect that the trees are loaded with berries and there is every indication that excellent crops may be expected. Picking begun about December 1.

Sugar conditions in the coast regions are excellent. Abundant rains have occurred, rendering a fine cane crop, which is well matured and will soon be ready for cutting. It is estimated that the tonnage from this section will considerably exceed that of last year. In the interior sugar-growing State of Morelos opposite conditions prevail. Rains have been scarce and the majority of the cane has failed to come to maturity. Here the crop is reported to be the lightest in years and is expected to fall 30 per cent below that of last year.

ESTABLISHMENT OF IMPORTANT INDUSTRY.

That the immense tracts of long-leaf yellow pine in Mexico may, in addition to the lumber annually produced, be made to furnish the Republic and foreign markets as well with turpentine there has been recently established in the State of Michoacan, near Morelia, a factory for the production of raw turpentine, having a capacity of 200,000 gallons yearly. The manufacture of turpentine has been carried on in a small way in Mexico for some time, but in the crudest manner, according to the fashion handed down by the Indians, and naturally it has not made any appreciable commercial showing. It is expected, however, that with the erection of the new plant, which is one of the most modern in existence, the establishment of a successful turpentine industry in the Republic is now launched. As

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climatic and other necessary conditions obtain here, it is hoped that with the low cost of labor it may be possible for Mexico to enter into and become a controlling factor in the foreign turpentine trade. The plant is now in active running order.

UNITED STATES LEADS IN COMMERCE.

The general industrial and trade conditions of Mexico are at present such as should command attention in the United States. The country is rapidly advancing educationally, industrially, and commercially; the feeling of the people toward the United States is most friendly, while purchases of American manufactured products are already large and capable of substantial increase.

The total trade of Mexico for the fiscal year 1907 was valued at $239,727,936 gold, of which $116,214,967 represents imports, and $123,512,969 exports (including bullion and specie). The value of the imports from the United States was $72,895,539, and of exports to the United States $87,652,943. The United States takes by far the larger proportion of Mexico's exports and furnishes the greater percentage of her imports. Of the share of Mexico's imports furnished by European countries, Germany supplies most, representing a value of $12,165,767, followed by Great Britain with $11,749,275, France with $8,781,624, and Spain with $3,970,542. Other European countries show much lower figures, and are, in their respective order, Belgium, Italy, Austria-Hungary, and Switzerland.

The above figures, though gratifying as regards the trade of the United States with the Republic, should not create a feeling of overconfidence. Trade with European countries shows a constant increase much larger in proportion than that accredited to the United States. For comparison, the following gains for the fiscal year 1907 over 1906 are noted: Germany, $1,872,739; Great Britain, $1,698,867; France, $728,307; United States, $415,806. The nations of Europe are certainly alive to the importance of Mexico's markets.

The principal articles imported from the United States into Mexico are coal, lumber, gunpowder, manufactures of iron and steel, machinery, raw cotton, wheat, and boots and shoes. Mexico's principal exports to the United States are copper, lead, goatskins and hides, coffee, and textile grasses.

Statistics contained in this report are given as officially issued by the Mexican Government.

MERCANTILE OPPORTUNITIES IN JALISCO.

Jalisco has a leading position in the development of western Mexico. The population is approximately 1,250,000. The State has a coast line of about 300 miles on the Pacific Ocean in which there are three harbors, viz, Las Penas, Chamela, and Purificacion. The varied conditions of climate and the remarkable fertility of the soil render an unusually rich agricultural territory and offer a field for great future development. The land is divided into large haciendas, which are the property of Spaniards and native Mexicans. Guadalajara, the capital, with a population of about 120,000, is the seat of these wealthy haciendados, and has by far the greatest per capita wealth of any city of the Republic.

On the lower table-lands in the valleys a considerable quantity of corn is produced, which is used for home consumption, a portion being employed in the manufacture of alcohol. Although this is the

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greatest corn-producing State in Mexico, there are years, such as 1906, when corn is imported from the United States for consumption in Jalisco. On the higher table-lands wheat of good quality is produced, which is milled locally. Several modern mills have been built and equipped with up-to-date machinery. Jalisco flour has a deservedly good reputation.

Suger cane is raised in large quantities. In the valleys of Zapotlan, Tamazula, and Ahualulco there are modern plants producing a good white loaf sugar. Statistics for the fiscal year 1906 show that there were 6,448,060 kilos (kilo=2.2046 pounds) of molasses and 6,196,400 kilos of sugar produced in Jalisco.

Rice is raised in the State, but the quantity is not sufficient for the home demand. This product is brought in from the neighboring State of Colima and the territory of Tepic, where it is raised in large quantities.

ORANGES, TOBACCO, AND TIMBER—WATER POWER.

Oranges of the best quality grown in Mexico are raised in this region, and are shipped to other portions of Mexico, and, to some extent, to the United States. The Mexican Central Railway has had under construction for two years past a spur from its Guadalajara branch to the orange groves of Atotonilco, and this year a special effort is being made to market oranges from this district in St. Louis and Kansas City and Texas points. The oranges here are ready for the market from the middle of October on, and so have the advantage of being a month or so earlier than the California fruit.

In the Las Penas Valley a good grade of tobacco is produced, which is bought on the ground by representatives of the Mexico City cigarette factories and shipped by way of Guaymas and El Paso in bond. The soil in this valley, as in certain districts of the territory of Tepic, notably in the valleys of Santiago, Exquintla, and Compostela, is particularly suited for the raising of a high-class wrapper tobacco. The methods of curing and culture now prevailing are crude; but with good seed and proper culture and curing tobacco raising in the chocolate-colored soil of these coast uplands should be lucrative.

There is considerable pine timber on the mountain ranges which traverse the State, particularly in the main coastal range of the Sierra Madres. Lack of transportation facilities, however, prevents the marketing of this timber.

The State is well-watered, and its water courses provide enormous resources of undeveloped water power. In the city of Guadalajara there is a street railway and lighting plant, which sells power at a reasonable rate to a number of small factories. In the Atemajac Valley, outside the city of Guadalajara, there is a modern 4,000-horsepower plant operating cotton mills and other factories equipped with American electrical machinery. At the falls of Juanacatlán there is also a large plant equipped with electrical machinery manufactured in the United States.

MINERAL RESOURCES.

The mining camps of Jalisco from north to south are Bolaños, Hostotipaquillo, Etzatlan, Ameca, Bautista, Ayutla, Parnasso, Mascota, Navidad, San Sebastian, Guachinango, Cuale, Bramador, Tapalpa, and Zapotlan. The metals produced are silver, copper, gold, and lead. The mines are largely silver mines, which produce small

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amounts of gold, while the Autlan copper district is promising. The main producing mine of this district, the San José del Amparo of Etzatlan, which is owned largely by Pennsylvania investors, has been shipping ore for some time, and a 150-ton cyanide plant was opened for operation in January. The veins are strong and extensive in Jalisco, and while the mines are largely undeveloped, conservative experts say that the State will be one of the great mining districts of the Republic when its powerful low-grade ledges are opened up. This is particularly true of the Hostotipaquillo district, an old Spanish district with a record of large production, which was practically abandoned on account of the unsettled conditions. Americans went into this district a few years ago and now the El Favor, Virginia-Cabrera, the Santo Domingo, and half a dozen other mines have sufficient ore blocked out to warrant the erection of large mills. The extension of the Southern Pacific Railway will reach the district and thus solve the transportation problem. The mineral development of Jalisco has been retarded by the rich agricultural resources, which attracted Spanish capital and energy as soon as the surface bonanzas of the mines were exhausted.

COMPARISON OF IRON DEPOSITS OF JALISCO AND OTHER STATES.

The iron deposits of the State of Jalisco are small and, in comparison with those farther south along the coast in Colima, Michoacan, Guerrero, and Oaxaca, are insignificant. Iron is found in the district of Comanja, Tula, and Providencia. At the two places last named foundries have been established and run with intermittent profit, producing a good quality of charcoal iron. In Pihuamo are large bodies of iron ore, practically undeveloped and of a somewhat lower grade. In Colima there are within a radius of 30 miles iron deposits which show at least 60 per cent iron with a low percentage of phosphorus, good bessemer iron, which will run over 60,000,000 tons.

There is one deposit in the State of Michoacán, the Progresso, which measures up 28,000,000 tons of a superior grade of iron. Still farther south, near the mouth of the Balsas River, in the State of Guerrero, there is an immense deposit of iron which has been variously estimated by experts to contain from 220,000,000 to 260,000,000 tons of 63 per cent of iron. From this point down the Guerrero coast there are a number of smaller deposits ranging from 1,000,000 to 20,000,000 tons. In the State of Oaxaca are also a number of deposits; those near the coast are inferior in quality, but those inland are of almost the same quality as the deposits described.

INDUSTRIAL ACTIVITY.

The cattle industry in the State of Jalisco is growing larger every year, and with the importation of better stock from the United States the quality of the cattle is improving.

In the district of Tequila a distillation of the root of the maguey plant is made, named from the district "vino de Tequila," which is sold in large quantities all over Mexico. Brandy is also distilled from the maguey and alcohol from corn and sugar. The combined annual output of the many small distilleries throughout the State is estimated at approximately 4,620,000 liters (liter=0.26417 gallon.)

There are five cotton-goods and textile factories, operating 50,907 spindles and 1,343 looms, and giving employment to 1,917 operators. According to the latest available annual statistics, these factories con-

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sumed 1,366,933 kilos (kilo = 2.2046 pounds) of cotton and had sales of an estimated value of $1,393,919 Mexican. Woolens for home consumption are woven in the State.

The cigar and cigarette, soap, candles, match, and brick and tile industries are all of more or less importance. Tanning is a local industry. In Guadalajara there is a small shoe factory with modern equipment of American manufacture.

EXTENSION OF RAILWAY LINES.

There is considerable railway construction in this section at present. It is hoped that in July will be formally opened the extension of the Mexican Central Guadalajara line to the Pacific coast harbor of Manzanillo, where improvements involving large expenditures have been made in port works. When finished this line will provide a needed outlet for western interior points to the Pacific Ocean, thereby opening up channels of trade with the Pacific ports of the United States, British Columbia, Central and South America, and the Far East and rendering the importation of foreign products less expensive.

A considerable work has already been done from the Guadalajara end of the Southern Pacific West Coast trunk line, which is being built from the terminus of Guaymas to the city of Guadalajara, under the name of Cananea, Rio Yaqui, and Pacific Railway. Work is also progressing on the line at Mazatlan. These railways will contribute much to the development of the west coast of Mexico, and will greatly enhance the importance of Guadalajara as a distributing center for the interior western points.

MARKETS FOR AMERICAN MACHINERY.

There is at present a good market for American agricultural machinery and implements of all kinds, and I am told that the demand for these goods is constantly increasing. Although German and English goods are found in competition in many instances, implements of American manufacture of every sort predominate everywhere. Sales of American plows lead, notwithstanding the fact that our German competitors have introduced and tried to popularize here a double-molded board, and also a gang plow. The American-made plow, however, is said to give better satisfaction in every way.

In thrashing machinery the strongest competition is with machines of English manufacture, although here again the American product leads in sales, being better adapted to the needs of the country. The American machine is of lighter weight and simpler construction than the English, and therefore more readily kept in repair by users who are not naturally of a mechanical turn of mind. American-made machines are also lower in price than the English.

Mining machinery used in the mining districts of this region is for the most part of American origin. In the case of mining machinery at least the American manufacturer has studied the needs of his customers and the requirements of packing. Machinery which must be carried over the Sierra trails is sent in sections in the most convenient manner. American electrical machinery has the best reputation here, although the Germans are making efforts to obtain the Mexican trade in electrical devices.

Corrugated iron in large quantities is used in this section. The greater portion is at present imported from England, which makes a

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product of greater width than the American, and for that reason is preferred. Dealers state that the American manufacturers would be able to find a good sale in western Mexico for an iron 32 to 36 inches wide. The quality of the American product is good, and the finish better liked than that of its competitor, which is of a dull color. England also holds the market for black sheet iron, principally because of the price, which is less by from 1 to 1½ cents per pound.

MISCELLANEOUS GOODS OF FOREIGN MAKE.

Guadalajara is the center of a large trade in milk cans, of which some are furnished by the United States and others by Germany. The American article is acknowledged to be superior both in material and make, and might control the market if made in the liter measurements [liter=1.05668 liquid quarts], like the German can.

Stamped goods and enamel ware of every description find large sales in Mexico, and Americans are able to undersell other countries in these lines. Butter churns and other articles for dairy use might be profitably placed on the market.

The better grades of glass tableware are from Europe, principally from Germany; common glassware is secured in the United States. The dealer most prominent in this line in Guadalajara reports that he disposes of a carload of American cheap glassware in about eight months, on an average. France and England furnish the high-grade crockery ware.

In the hardware and dry goods trades the Germans and French, respectively, lead.

American firearms are in demand in this section, with Belgian arms in competition.

German and French manufacturers of hardware and dry goods study the wants of the Mexicans and the conditions of payment that are most convenient for them, with the result that they sell the goods; while the American manufacturer of the same articles, as of some other lines, tries to push his goods in his own way, seemingly regardless of the people with whom he has to deal, and often without success. There is a notable exception in the case of American shoes, which are preferred to those of Spanish and French make and practically control the market. American ready-made clothing for men and soft and stiff hats have a good share of trade in their line.

In the drug and chemical trade of Mexico Germany holds first place, and the products of German laboratories and chemical works are found in every part of the country.

The druggist glassware trade is held by Germany.

Importations from France are principally toilet articles, perfumes, soaps, powders, etc.

SYSTEMS OF PAYMENT AND TRADE METHODS.

The reason for the predominance of German goods in the drug and chemical line is the fact that German houses allow their Mexican customers three to four months credit, while the American houses generally sell at 30 days net, with 2 per cent discount on 10-day payment. The German credit system appeals to the Mexican buyer in that it gives him time not only to receive the goods, but in many in-

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stances to sell them before the account falls due. On the other hand, under the American system of billing on short time, it often happens that the bill must be paid long before the goods can arrive, be checked up, and examined. In certain cases it has taken from forty-five to sixty days for goods to arrive shipped from the United States. This delay, though doubtless due to congestion of freight often at Mexican ports, should, in the opinion of Mexican importers, be taken into consideration by the consignor. Care should be taken in invoicing, because when errors occur in the invoice the consignee is fined a treble duty on the goods.

In the drug trade at least the European salesman seems to know the exact cost of the American products, as well as the added cost of the goods laid down in this country, and accordingly, when endeavoring to make sales, meets our prices or undersells us. Notwithstanding these drawbacks American trade is increasing, and there is probability of a more rapid increase in the future, owing to the recent efforts on the part of some American houses more thoroughly and systematically to introduce and push the sales of their products. Patent medicines of all descriptions have a good market in this country if sufficiently advertised.

SUGGESTIONS FOR INCREASING TRADE.

The American exporter in any line who wishes to introduce goods upon the Mexican markets, must remember that transportation facilities are not of the same order in all parts of this country as in the United States. Goods destined for many interior towns must often be carried part of the distance by pack mule, and should therefore be carefully and closely packed, with a view to permit this mode of transportation, if this is requested. European competitors give minute attention to all such requirements, and success in furthering American trade depends, more largely than is realized, upon these small details.

Again, when sending salesmen to Mexico European houses take into consideration the characteristics and habits of the people. To be successful in this country, the salesman should remain upon the ground long enough to enable him to become acquainted with the trade and gain the confidence of the buyer. The Mexican requires some time for the consideration of a proposition, especially a new one, but when once his custom is secured, he proves a good-paying and a steady purchaser. American houses are said to be too prone to become discouraged over small initial orders, and to discontinue sending representatives.

Through its relation to the Southern Pacific Railway extension, as previously mentioned, Guadalajara is likely to interest American capital largely in its undeveloped agricultural, mineral, and timber resources; and with increasing prosperity this already rich section of Mexico will show a much larger purchasing power and a much larger per capita consumption of American manufactures.

CONDITIONS IN SAN LUIS POTOSI.

The State of San Luis Potosi owes its importance both to the large mining resources contained within its boundaries and to the

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favorable geographical position which it occupies. The capital, situated on a high plateau, bears the same name and is about equidistant from the Gulf of Mexico and the Pacific Ocean. The city of San Luis Potosi has for a century past been the trading center for the western slope, since before the advent of railroads goods imported through the port of Tampico for western and northern points were transported hither by pack mules for distribution. The city is now a railroad center, with the Mexican National Line leading north and south, the Mexican Central westward to Aguas Calientes, where it joins the main line, and eastward to Tampico and the Gulf of Mexico. This city has a population of approximately 70,000 inhabitants, and commercially ocupies a similar position on the eastern slope to that held by Guadalajara toward the western.

RESOURCES AND INDUSTRIES.

Agriculturally the State can not compete with some others, as there is a lack of rainfall here, and few natural streams, although regions near the Gulf States are fertile and well watered. The cattle-raising interests of the State are of growing importance, and the products of the charcoal industry furnish one source of supply for the Mexico City fuel markets.

The mining riches of San Luis Potosi include sulphate of mercury and zinc, cinnabar, silver, copper, gold, and lead. The principal mining camps are Catorce, Charcas, Guadalcazar, Carro de San Pedro, Bernalejo, and Ramos. I am informed that throughout the State there are approximately 13,000 miners employed.

The capital city is well paved and well kept, and boasts some important commercial houses, having extensive connections with all parts of the Republic. Its industries include smelting, a flour mill, a nail factory, a linen mill, etc. The Mexican National Packing Company has in course of construction a cold-storage plant in this city, as auxiliary to the packing house at Uruapan.

As regards the various products of import and their origin, practically the same conditions, requirements, and sources of supply obtain here as reported from other sections. The demands for mining machinery, agricultural machinery and implements are supplied principally by American manufacturers, with English and German products in competition. The same holds true in the hardware trade. A German firm conducts a well-appointed retail store for stationer's supplies in this and several other cities of the Republic, handling, naturally, most largely goods of German manufacture. There is also a depot where like products of American make may be secured, as well as American books and periodicals.

CLOTHING, BOOTS AND SHOES, ETC., FROM THE UNITED STATES.

There exists a good demand here, as elsewhere throughout the Republic, for American ready-made clothing for both sexes. There is also a good trade in the finest qualities of ready-made infants' wear, as required by Mexican families of the higher class, which is now chiefly supplied by French makers. Another article of women's wearing apparel for which the annual sales are large is the "tapalo," the characteristic native wrap, both headgear and shawl, worn generally by all women and girls throughout Mexico, with the exception

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of women belonging to the wealthy class. This shawl, as worn by the lower classes, is known as a "reboso," is made of cotton, and is of domestic manufacture. France is the principal source of supply for the "tapalo," which is always black, made either from wool or silk and wool, woven with a border, and sells ordinarily for from $2 to $25 Mexican.

The boot and shoe trade is very largely supplied by American makers. Our products here, as elsewhere in Mexico, are in good favor, and the same may be said of numerous manufactures found in the various retail stores.

ENGLISH PACKING SAID TO BE BETTER THAN AMERICAN.

The trade in American groceries and foodstuffs in San Luis Potosi is considerable. Goods of English origin are found in competition, and in some instances this competition is very keen; particularly in the biscuit line. I am told that the first cost of English products is less than of American products, the rate of customs duty being the same in each instance; but the British competitor takes more care in packing, and consequently his product is apt to give better satisfaction. English biscuits are packed in hermetically sealed cans and will remain in a fresh condition for a long time.

The sales of California canned fruits are somewhat slow, the high rate of customs duty tending to prohibit any marked increase in the same. Both Spanish and American olives are on the market, a fair proportion of this trade being ours. Breakfast foods are supplied by American houses and, with the exception of oatmeal, their products meet no competition. A certain British firm prepares this food for export, packed in tin cans, with consequent success. Two dairies are now established near San Luis Potosi, and while American-made butter excels the Mexican output, sales of the former have fallen off, owing to the proximity of this new source of supply. American hams and bacon are in good demand, also canned meats and fish, these especially for use in the mining regions of the State.

HENEQUEN SITUATION IN YUCATAN.

The financial depression prevailing among henequen planters, noted some weeks since, has been substantially relieved by the Banco Nacional de Mexico, which recently authorized its branch at Campeche to advance the sum of $2,000,000 Mexican to the henequen growers of that section. The bank will purchase fiber to the above amount, and, as the same is presented, will pay the growers 90 per cent of the market value of the product, as a loan for a term of six months, the notes of the owners bearing 10 per cent interest. The fiber is now being gathered, and the situation bids fair to become much brighter in that section. Recently published statistics state that the exports of henequen from the Port of Progreso for 1907 amounted to 611,845 bales, weighing 100,773,004 kilos (kilo=2⅕ pounds), valued at $24,874,317 Mexican. As compared with the exports for the previous year, an increase of 1,200 bales is shown. The above 611,845 bales were divided among the following countries: United States, 552,072; Canada, 44,269; Cuba, 7,787; Europe, 7,710; South America, 7.

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VEHICLE AND HARNESS TRADE.

MARKET LARGELY SUPPLIED BY UNITED STATES MANUFACTURERS.

Consul-General Philip C. Hanna, of Monterey, reviews the vehicle and harness trade of Mexico as follows:

In the business of manufacturing carriages, buggies, and other light vehicles a beginning has been made in this Republic, but as yet most of such vehicles used here are imported, the United States having by far the larger part of the trade. A drawback to the manufacture of such vehicles in Mexico is the lack of the proper kind of timber. This timber is secured from the United States, and factories generally find it cheaper to import finished parts from that country, especially the wooden parts, and put them together in their own factories.

Frequently vehicles are brought in unpainted and untrimmed, or "in white," as it is termed in the trade, and painted and trimmed here. The duty on a painted carriage or buggy ranges from 23 to 33 cents (American currency) per kilo (2.2 pounds), while the charge on an unpainted and unfinished vehicle ranges from 6 to 17 cents per kilo. Thus some dealers say they find it profitable to do the painting and finishing of seats and tops here, although the material for these purposes is also generally imported from the United States. Cushions and trimmings ready to put on pay a duty of 15 cents per kilo, as compared with 33 cents paid on the weight of a finished vehicle. Parts of buggies and carriages, such as spokes and felloes, are admitted at rates ranging from 3 to 8 cents per kilo.

The finest victorias used here are mostly imported from France, though some are imported from Germany. The class of French vehicles sold here bring from $1,600 to $2,000 or more. Victorias of equally high grade are made in the United States, but it is said American manufacturers have not been able to compete in price. On the other hand, Germany is now exporting similar vehicles at much lower prices than those made by France, but perhaps lacking in the style and finish of the French makes.

WHERE UNITED STATES PREDOMINATES—HARNESS TRADE.

American light vehicles are favored here because they are well made and adapted to the climate. Recently experiments have been made in Monterey in the manufacture of bodies for buggies and carriages, but it has not been an entire success. Notwithstanding the fact that kiln-dried woods are brought from American factories for this purpose—panels and other thin parts being made here—it is said that they have a tendency to split after they are finished and painted.

In all light carriages and buggies the United States is able to sell cheaper than France or Germany, and a local dealer estimates that 30 such vehicles from the United States are sold here to 1 from Europe. I am informed that all rockaways and similar vehicles used here are of American make.

Farm wagons and the heavier wagons used by miners are brought almost exclusively from the United States. On these the duty ranges from 11 to 28 cents per kilo for the unfinished vehicle, according to weight. The only heavy vehicles manufactured are ox carts, of

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which a large number are used here. The wood used in the making of the wheels of these carts is imported from the United States.

At the present time most of the harness used in this country is made in Mexico of Mexican leather. The tanning industry has been developed to a point where a good quality of leather for harness making is furnished at home, and the workmanship of the local harness factories satisfies the local demand up to very fine and expensive harness. The latter is imported mostly from France, although Germany and the United States have a share in the trade. These sets of French harness cost from $500 to $1,000, and as might be expected are not in general use. In medium, and even low grades of harness, American manufacturers do considerable business in Monterey, but the local factories dominate the market. [The two principal importers of vehicles and harness at Monterey are listed at the Bureau of Manufactures.]

PORT OF ENTRY AT MAGDALENA BAY.

GOVERNMENT'S ACTION OF GREAT IMPORTANCE TO MERCHANT VESSELS.

Consul-General A. L. M. Gottschalk reports from Mexico City that the Government of Mexico has made Magdalena Bay a regular port of entry, dating from February 15, adding the following details:

The Mexican Government, in view of the movement which is taking place commercially toward Magdalena Bay, decided to make of the Bay, for an indefinite period, a port of entry. This will do away with the necessity which has hitherto existed of merchant vessels with cargoes for Magdalena Bay clearing from American ports for Ensenada and being obliged to transport their cargoes from the latter point to Magdalena Bay as "coastwise cargoes," it having first been required, of course, that the cargoes in question be entered at the Ensenada custom-house and the duties thereon paid at that port.

After February 15 Magdalena Bay will be a Mexican port of entry, under the charge of a skilled and experienced Mexican custom-house officer specially selected by the Mexican treasury department for that service. His title will be "Administrator of the Magdalena Bay Custom-House," and he will be accompanied by a specially selected staff, which will include a competent official speaking the English language fluently. The new collector (administrador) will be Señor D. Rafael Castro Montaño, who will probably also exercise the functions of captain of the port.

CANADA.

PRESENT BUSINESS CONDITIONS.

COMMERCIAL PROSPERITY CHECKED BY UNAVAILABLE CAPITAL.

Consul-General William H. Bradley, of Montreal, furnishes a summarized report on the commerce and banking conditions of Canada for the year 1907. He prefaces his review with the following newspaper statement:

The trade of Canada has outstripped the capital available for its conduct. Bank discounts of commercial paper have mounted up till they equal public deposits, and a halt to further expansion has been called. Floating capital

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has been converted into fixed capital during the last five or six years the world over. Prices of all commodities have steadily risen, not least the price of labor. Extravagance has marked the way of living. The waste of wars within the decade has been great. An enormous expansion of credit has taken place, and when capital, the basis of sound credit, began to run short a sharp collapse followed.

With the year 1907 the climax of an era of great growth in all directions was reached in this province and in the Dominion. Ten years ago the population was 5,370,000; to-day a careful estimate places it at 6,600,000, a gain of 23 per cent. Foreign trade has advanced from $234,926,000 to $571,783,000 in the same period.

Since 1897 the public deposits in banks—chartered, government, and savings—have risen from $270,000,000 to $667,400,000. One point in the banking situation is worthy of note: In 1906 the operations of Canadian banks on the basis of total assets were enlarged $124,500,000, while in 1907 the enlargement was only $18,800,000. The rate of expansion was slowing down, as deposits in 1906 rose $72,000,000, while in 1907 the increase was only $15,000,000. There was therefore less to lend. Six years ago bank loans to commercial borrowers were 89.5 per cent of public deposits; to-day the loans amount to about 98.6 per cent of the deposits. Between July 31, 1906, and July 31, 1907, banking capital, reserve, and deposits increased $55,729,000, while in the same period commercial loans increased $80,394,000.

Five years ago the percentage of commercial loans to total assets of banks in Canada is said to have been 52 per cent; in 1906, 57.5 per cent; and in October, 1907, it was 61 per cent. In the past three years the balance due Canadian banks by foreign agents has been reduced from $21,140,300 in 1905, and $17,836,700 in 1906, to $6,639,400 in October, 1907. The aggregate bank clearings at Montreal for the first ten months of 1905 were $1,078,000,000; of 1906, $1,246,815,000; and of 1907, $1,289,046,000. Throughout the Dominion clearing increased 9.4 per cent during the ten months of 1907.

IMPORTS AND EXPORTS—AMERICAN BRANCH CONCERNS.

The imports into and exports from Canada during the past five years were as follows:

Year.	Imports.	Exports.	Year.	Imports.	Exports.
1903	$233,790,516	$214,401,674	1907	$345,271,090	$226,512,068
1904	243,586,424	198,414,439			
1905	251,603,000	190,854,946	Total	1,357,514,895	1,065,667,078
1906	283,263,865	235,483,956			

The growth of manufactures during the past few years has been very rapid. In 1901 the value of the output of manufacturing industries in all Canada was $481,053,375; in 1907 it was $717,118,092. In Montreal alone for the year 1901 the value was $84,490,942, which had grown by 1906 to $118,044,675.

A special commissioner, sent over by the British Board of Trade to find means of extending the trade with England, states that 122 of the leading manufacturing firms of the United States have operating branches in Canada, and declares that in Montreal alone $25,000,000 to $75,000,000 American capital is invested.

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NORTHWEST RESOURCES.

POSSIBILITIES OF UNDEVELOPED AREA ON THE ARCTIC SLOPE.

Consul A. G. Seyfert writes from Collingwood the following concerning the resources of the northwest of Canada, and more particularly of that portion lying north of the Saskatchewan, which is often referred to as "Canada's fertile northland:"

The Canadian prairie provinces of Manitoba, Saskatchewan, and Alberta have nearly reached the 100,000,000-bushel mark of annual wheat production, and there is also being produced nearly 100,000,000 bushels of other grains annually. The tract of country from which this enormous yield of grain is being produced is practically confined to what has been known in past years as "the fertile belt;" that is, the country south of the North Saskatchewan River. The limit of production in this area is very far from being reached.

The size of the northwest, even that of the fertile belt, is hardly realized by one accustomed to the less extensive fertile areas in eastern Canada. The following is a summany in part of an account in the Toronto Globe by a writer who spent last summer in an exploring expedition in the north:

From Winnipeg to Edmonton is about 800 miles, more than three times the distance from Ottawa to Toronto. It has been stated that the Canadian Northern Railway between these two points, with about 100 stations, will have a grain-shipping station at all but two of the hundred. In this area there are now probably more than 1,000,000 people, and the annual increase by immigration will approximate 150,000.

The size of the region lying north of the Saskatchewan River is still less comprehended. From the international boundary to Edmonton is 312 miles, but from Edmonton to the mouth of the Mackenzie River in an air line is over 1,300 miles, about four times the distance from Toronto to Montreal.

North from Edmonton about 400 miles as one travels by the rivers is Fort Vermilion, on the Peace River, where there is a well-equipped, modern, electric-lighted flour mill. There is undoubted evidence that wheat has been grown about this point for many years successfully. North from here, down the Peace River to the Slave River and thence down the Mackenzie River (which in this part might be navigated by large ocean steamships), is Fort Good Hope, which is just outside the Arctic Circle. At this place—1,200 miles farther north than Winnipeg—excellent potatoes, cabbages, and onions are grown.

From Prince Albert on the North Saskatchewan (which is about 300 miles north of the international boundary) north 150 miles is Lac La Rouge, where there has been a Hudson Bay post and a Church of England mission for many years. Wheat has been grown successfully there for a number of years in succession, as well as all the ordinary garden vegetables. In the country 100 miles north of Lake Winnipeg and the North Saskatchewan, which the proposed railway to Hudson Bay will traverse, there is a great clay belt like that through which the Grand Trunk Pacific runs in New Ontario, estimated to contain at least 10,000 square miles, where all ordinary vegetables and hardier grains can be grown.

MINERAL RESOURCES ARE ABUNDANT.

There are yet other sources of wealth. About eleven years ago there was bored on the Athabaska, 170 miles north of Edmonton, a prospect hole looking for natural gas. The gas came in such force as to stop the operations, and this gas well, the largest known in the world, has been burning continuously ever since. Up and down the Athabaska, above and below this point, are remarkable deposits of tar sands, as they are called, which if utilized would furnish paving material in abundance. Moreover there are indisputable evidence of enormous wealth in petroleum, which in oozing out, as it has done through centuries, has caused these strange deposits. In the vicinity of the

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tar sands, along the Athabaska, are also extensive deposits of salt, where it can be taken from the surface in great masses, pure white.

Along the bank of the lower Mackenzie for many miles are great areas of burning coal. When the discoverer of this river, Sir Alexander Mackenzie, passed down, about 1789, the same coal was burning, and it has never stopped since.

The country is so large and so little known that no one could say what hidden sources of wealth there may be. In view of the development of Cobalt, which is not very far from the Ottawa Valley, from an unmarked spot in the wilderness seven years ago to the greatest silver-mining district in the world, it is difficult to predict the possibilities of this great unexplored country north of the Saskatchewan. Last winter in Ottawa the statement was made before a committee of the Senate, and by one well qualified to judge, that in the land north of Edmonton, extending down the Peace River, as far as wheat production is possible, there was a tract of country fit for settlement as great as that now settled west of Winnipeg.

ONTARIO HARDWARE TRADE.

PROMINENCE OF AMERICAN GOODS—EXTENT OF COMPETITION.

Consul-General John G. Foster, of Ottawa, forwards a report by Mr. James J. McBride, consular agent at Arnprior, concerning the hardware trade in the latter's district, based on information received from local Canadian firms. Following is a summary:

Of the imported hardware handled here, American goods predominate, followed by English goods. The foreign hardware, other than American, sold by the local merchants in any considerable quantities is: Blacksmiths' hardware from England, cutlery from England and Germany, glass from Belgium and England, guns from Germany, and ammunition from England and Germany. Granite ware of German manufacture is being introduced. From the United States are imported all kinds of shelf hardware, brass fittings, cordage, rifles and ammunition, nickel-plated ware, and builders' hardware. The most active competitors are English and German manufacturers. The former have the advantage of a preferential tariff of from one-fourth to one-third (usually the latter) off the general tariff; and the latter, despite the surtax of one-third of the general tariff, are pushing their goods on the market.

In general, American goods give satisfaction, with the exception of cutlery, which is pronounced of inferior grade. American brass goods, better-class locks, and nickel-plated ware are especially popular. The promptness with which orders are filled and good methods of packing are commended.

Few American houses send representatives over this territory. Trips are usually made only once a year, except in the case of one or two firms. A few English agents, usually selling paints and varnishes, and occasionally a French or German representative, visit this district.

METHODS OF INCREASING TRADE.

Nearly all the firms here expressed the wish to receive catalogues from American manufacturers. The lines most desired are general hardware, brass valves of all kinds, guns, paints, and scales. In this connection it should be noted that the duty has been removed from bona fide trade catalogues and price lists not designed to advertise the sale of goods by any person in Canada, when sent into Canada in single copies addressed to merchants therein, but not for distribution.

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To increase their trade, or even to hold that already established, American exporters should deal more directly with the retailers, who understand the local markets. Moreover, the profits of the jobbers mean an increased cost to the consumer and handicap the sale of American goods. To cite an example, one firm informed me that not long since a representative of a jobbing house quoted some American goods which the firm had at the time in stock (imported direct) at a price at which the firm itself would sell these goods in reasonable quantities at a good profit. The large lumbering establishments in this district take considerable quantities of lumbermen's hardware annually, much of which is obtained through the local dealers. [A list of the principal hardware dealers of this district is on file in the Bureau of Manufactures.]

TRADE AND REVENUE.

HEAVY INCREASE IN IMPORTS—GOVERNMENT FISCAL REVIEW.

Consul R. S. Chilton, jr., forwards from Toronto the following newspaper statement giving the foreign trade of Canada for the year 1907:

During the twelve months of 1907 Canada's total trade amounted to $635,840,681, an increase of $45,895,877 as compared with 1906. The total imports were $362,515,267, an increase of $42,048,067, or about 12 per cent. The total exports were $273,325,414, an increase of $3,847,810, or less than 2 per cent.

Of the total increase in imports, $17,448,914 was in imports from Great Britain, $19,121,983 from the United States, $1,281,508 from France, and $984,886 from Germany.

On the other hand, Canadian exports to Great Britain decreased $8,713,849; exports to the United States increased $10,149,547; exports to France decreased $43,920, and exports to Germany increased $375,556.

Canada's total imports during the year from Great Britain were $95,094,488, and the exports to Great Britain were $126,347,931; imports from the United States were $215,245,100, and exports $117,536,998; imports from France were $9,501,052, and exports $1,872,424; imports from Germany were $8,049,884, and exports $1,872,659.

UNITED STATES.

EXPORTS OF MACHINERY—COMPARATIVE TRADE OF THE PAST TWO YEARS.

American manufacturers will be gratified to note the steady increase in the exports of machines and machinery, for it goes to prove that as foreign consumers become convinced of the superior adaptabilities of American machines to the uses for which designed they purchase them in larger quantities.

In the following statement, showing the exports for the calendar years 1906 and 1907, the total values of the several classes are given, and, in most cases, the leading countries to which shipped, which

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show that the countries most industrially advanced, even in the manufacture of machines and machinery, are the best customers:

Classes of machines and machinery.	1906.	1907.
Agricultural machines and implements:		
Russia	$4,673,243	$4,853,523
Argentina	4,703,622	3,588,769
France	3,070,043	3,586,222
Germany	1,864,699	2,598,047
British North America	2,917,129	2,515,489
Australasia	1,231,694	1,020,873
United Kingdom	1,086,674	932,727
Other countries	5,247,658	7,001,632
Total	24,744,762	25,597,272
Electric machinery:		
British North America	1,943,983	1,543,450
Mexico	1,049,097	1,551,562
Japan	960,146	1,411,209
United Kingdom	1,219,302	1,131,711
Brazil	530,494	979,730
France	276,750	848,711
Other countries	2,294,981	2,268,837
Total	8,274,753	9,735,230
Metal-working machinery:		
Germany	2,190,042	2,247,836
United Kingdom	1,594,591	2,112,896
France	987,188	1,380,783
Belgium	806,226	1,015,227
Italy	1,023,216	963,634
Other countries	1,312,064	2,432,459
Total	7,913,327	10,142,835

Classes of machines and machinery.	1906.	1907.
Sewing machines:		
United Kingdom	$1,733,089	$1,687,622
Germany	1,051,444	1,156,663
Netherlands	423,166	615,166
Brazil	330,439	541,308
Other countries	4,307,090	4,471,417
Total	7,845,228	8,472,176
Typewriting machines:		
United Kingdom	1,585,189	1,717,011
Germany	988,180	1,161,415
France	453,022	601,594
Mexico	373,152	360,545
British North America	269,044	284,979
Other countries	2,025,657	2,538,620
Total	5,694,244	6,664,164
Miscellaneous machinery:		
Engines and boilers	4,564,248	5,732,650
Locomotives	7,430,277	9,080,337
Laundry	652,231	711,912
Mining	2,837,240	6,125,951
Woodworking	936,288	1,386,381
Windmills	440,691	1,216,235
Printing presses	2,047,773	1,802,456
Pumps and pumping	4,122,703	3,722,847
Shoe	1,470,900	1,219,013
Cash registers	2,664,113	2,477,425
All other	26,360,175	26,698,009
Total miscellaneous	53,526,639	60,173,215
Grand total	107,998,953	120,784,892

WEST INDIES.

COMMERCIAL AND INDUSTRIAL CONDITION OF TURKS ISLANDS.

Consul Joseph A. Howells, reporting on the trade of Turks Islands, West Indies, writes as follows:

The colony for four years, 1903–1907, suffered from a depressed condition of the salt industry, which is the principal source of revenue to the people. The shipments of salt in 1905 amounted to 961,299 bushels, valued at $71,070, against 1,043,474 bushels, worth $69,469 in 1906. The estimated yield in 1907 was 1,800,000 bushels, one of the best seasons for many years, but the large yield was offset by the low price, several cargoes being sold at 4½ cents a bushel on board for coarse salt and 6 cents for ground or "fish" salt.

The average yearly merchandise imports of the colony for the five-year period, 1900–1904 was $143,799; those of 1906 fell to $134,179, while the average annual exports for the five-year period was $136,996, but in 1906 they dropped to $121,414. The exports for 1906 are classified as follows:

Articles.	Value.	Articles.	Value.
Conchs	$2,521	Sponges	$11,767
Salt	69,469	All other articles	1,776
Shells, turtle	8,604		
Sisal fiber	27,277	Total	121,414

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TURTLE SHELLS AND CONCHS—SISAL GRASS CULTURE.

The shipments of turtle shells represent an important item in the trade of the colony. The turtle fishers come from Nassau, North Providence, hunt or fish for turtles and only ship a small part of the shells from the local ports, but carry the larger part to their homes, whence they are shipped to London. A law has been proposed requiring a license and designating a closed season until 1910. Conchs, which are to be found in the sea in great quantities, are taken and dried and sold in Hayti and Santo Domingo. Sometimes valuable pearls are found in the conchs and are sold at various prices up to $100.

The cultivation of pita or sisal grass is now of material importance. At present it is only cultivated on the Caicos Islands, some 3,200 acres being utilized for that purpose. In 1907 a large tract of land was leased on Grand Turks which was planted in pita. The plants are growing finely and by the latter part of 1908 cutting of the leaves will begin. All the fiber is shipped to New York.

The colony, with a population in 1901 of 5,350, is conducted on an economical plane. The total expenditures for 1906 was $30,454. There is a surplus invested amounting to $34,339. A direct cable from Halifax connects Bermuda, Turks Islands, and Jamaica. A daily bulletin is furnished by the company at a cost of $583 a year.

The summer of 1907 was marked by a severe drought, which caused considerable suffering, although of much advantage to salt makers. Usually about 25 to 40 inches is the rainfall, and this takes place in the winter months and in May.

BRAZIL.

MARKET FOR IMPORTED GOODS.

OPPORTUNITIES FOR INCREASED TRADE IN AMERICAN PRODUCTS.

Consul-General George E. Anderson, of Rio de Janeiro, furnishes the following information concerning the demands of the Brazilian market and the manner whereby the products and manufactures of the United States may be introduced there in larger volume:

In the line of standard or staple goods competition is too keen for the man away from the field to get any business. To attempt halfway work is to invite loss, and as a rule if business in Brazil can not be gone after on a considerable scale and with a view of securing a permanent foothold in the country, the field had better be left alone.

In numerous lines there is in Brazil a field for the sale of imported goods, and in nearly every line of manufacture the American exporter who secures a market in Brazil can be sure of the permanency of that market, assuming that he can meet competition and that he looks after his trade. At present Brazilian imports show special demands in the way of machinery of all kinds, electrical appliances, building materials, dry goods, office and household furniture, pharmaceutical products and accessories, hardware specialties, modern food products, and similar goods. The demand in all these lines is increasing, the imports of the country in the year closed showing an increase of about 25 per cent over the imports of the year before, with no indication of any halt in the development of the trade.

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HOUSEHOLD AND OFFICE FURNITURE.

Heretofore there has been little done in the way of introducing American household or office furniture in Brazil, for several reasons. The shipment of furniture in its full bulk has been so expensive that, after duties are paid, the cost of the article to the consumer is prohibitive, and only fine furniture for special purposes has been imported, and this has been European. American roll-top desks and similar furniture are popular, but under present tariff and freight the cost is all but prohibitive. Since most American furniture manufacturers are now shipping their goods knocked down and in the white, I have no doubt but they will be able to gain a foothold and build up a satisfactory and lasting trade.

There could be a good sale of the higher grades of American iron beds, folding beds, davenports, sofas, lounges, and the like, but the goods will have to be introduced as something practically new to the Brazilian market. In general Brazilians run to light, highly decorated furniture; but that is due more to European models than to anything else. There is opportunity for the sale of gaslight novelties, portable oil stoves and similar goods. Already something is being done in this line, but the trade is not what it might be. In the way of office furniture something is being done in steel filing cabinets, and more can probably be done with a little pushing. All furniture should be made with a view of use in a hot, moist climate. Metal should be used when and where possible.

BUILDING MATERIAL.

In the line of building materials the United States has had little trade outside of the rougher articles. It has sent several million dollars worth of pitch pine annually for a good many years, and has dominated the market in turpentine. In prepared paints its trade has grown but little, even in spite of the preferential tariff favoring American paints. The market is a good one, and could easily be reached by American paint men. The matter of climate also should be considered in the paint trade, heat and moisture and not frost being the elements that are important.

Some American pressed brick have been sold for modern buildings in Rio de Janeiro, and the trade could be greatly increased. American building tiles are being introduced, but the preference so far is for the European article, chiefly because of freight considerations and because European manufacturers have agents on the ground. Nearly all the buildings in Brazilian cities are of stone and brick, solid, with practically no high buildings. It is probable, however, that the construction of two comparatively high buildings in Rio de Janeiro, now in course of erection, will lead to other buildings of this sort.

Nothing in the way of steel shingles seems to be known. I have seen some ceilings on the order of the American steel ceiling, but there has been no general introduction of them. There is a good opportunity in this line. Considerable iron and steel roofing is in use in some parts, but it is almost altogether of the sheet and corrugated order. There would be a good trade in galvanized iron materials if such goods were properly introduced. In the way of bathroom fixtures and plumbing supplies, few American goods are known

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and none are pushed. There is a splendid market for such goods. Kitchen sinks and fittings of the American style would also sell readily. Iron and steel beams are coming into use in building to some extent, but Belgium and Germany furnish most of them. American manufacturers have had no representation in Brazil to look after that particular line of business. There ought to be a good trade in iron and steel doors and shutters, fire doors and shutters, vault doors, and all similar goods, and for some forms of American drainage pipe. Water mains and pipes are used in constantly increasing quantities, but most of the goods come from Europe.

FOREIGN FOOD PRODUCTS.

American flour, lard, and bacon are again on the increase. Little is done in the way of tinned American meats, hams, and other products, because of the excessively high tariff duties. The United States has been sending a large quantity of codfish to Brazil annually for a good many years, but the Canadians are cutting into the trade, simply because American exporters have not paid proper attention to the requirements of the market. The trade in canned fish and canned fruits is small, because of the duties. Canned vegetables in the market are mostly from Europe, and are confined to two or three articles for the fine trade. Dried fruits are very high in price, but there is no reason why Americans should not have most of the trade, except that their European competitors have better steamship connections and can furnish goods more promptly and in better condition. With proper steamship service and cold storage American fruit men could supply Brazil with green fruit in what would be the best season in Brazil and the season of greatest plenty and least expense in the United States.

The demand for cotton-seed oil and its products is not fully supplied by the local cotton industries, and the use of American oil is constantly increasing. American common wines could unquestionably find a market here.

All food products for Brazil must meet the ever-present requirements of the hot, damp climate. Thorough packing and careful protection from climatic influence are not only the better policies in all cases, but in many cases are imperative.

DRUGGISTS' SUPPLIES—INDUSTRIAL MACHINERY AND HARDWARE.

Very few American pharmaceutical products are imported into Brazil, but there is no reason why this should be the case. There is an especially good field for tablet medicines. American patent medicines are commencing to do a good business, in some cases, although the number of remedies on the market is not large. Several lines of what may be called "medical foods" have a good sale, and many others could be introduced to advantage, such as malt extracts, condensed special foods, druggist sundries, toilet specialties, and similar goods. In standard drugs Germany and France seem to have the field, mainly because of their more intelligent development of the market. In dental supply goods, and in some articles among surgical instruments, American manufacturers have the lead and can maintain it with proper care. Enameled surgical ware is coming more and more into use, and the American products in this line ought to find

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favor. The list of goods of this class which would find favor with reasonable efforts to sell them in Brazil might be prolonged indefinitely.

In industrial machinery and hardware the imports from the United States have fluctuated in a way to demonstrate a total lack of care on the part of American exporters and of appreciation of the possibilities of the trade. There would be a first-class business in American cutlery if the trade were looked after. American kitchen ware is so much in favor that bids for supplies of such ware for municipal workmen's tenements were asked of American houses. Household ware of all sorts, such as metal washtubs, wringers, buckets, screens, small locks, and novelties, can be sold. The demand for American saws and tools of all kinds is already satisfactory where a reasonable start has been made. Articles like awning frames and appliances, metal signs, wire goods of all sorts, and even iron tanks can be sold, with an intelligent canvassing of the field.

There is a chance for the sale of machines for small plants of many sorts, like biscuit-making machines, laundry machinery, and wood-working machines of many kinds. The demand for engines is light, and, as electricity from water power is likely to be far cheaper in the near future than imported fuel, it is likely that the demand for power machinery will be confined almost entirely to electrical machines and water-power motors. There is a splendid field for water wheels, turbines, etc., all over South America. The industrial life of South America in the future is to center almost entirely about the development of its water power and the transmission of this power from falls to cities through electrical appliances. The sale of electrical appliances of all sorts ought to be pushed in Brazil immediately. The inauguration of electric-lighting services in a number of Brazilian cities within the past few months is soon to lead to an immensely increased demand for electrical specialties, lighting goods, small power plants, and everything of the sort.

There is also a splendid outlook for sawmill plants and all parts and appliances connected therewith, for water-power plants to be used with them, and for lumbering machinery and implements generally. In small industrial railway plants American manufacturers have a good share of the trade. In other industrial conveniences Brazil has been very backward. The use of wheelbarrows, for instance, is not yet common.

MISCELLANEOUS GOODS.

American paper and paper products ought to be more generally used. Pasteboard boxes and similar goods are being used more and more, and the prices obtained are such that native industries, which work upon a basis so costly that their existence would be impossible in almost any other country, are being developed. Articles such as stencils, pencils, pens, stationery supplies, etc., are in demand, and the United States sends a good many supplies of that sort. American school supplies are growing more and more popular, and many of the States of the interior are fitting up their model schools with American school furniture and appliances. Fireworks and firecrackers come from the United States or through the United States. Paper balloons and paper decorative novelties, calendars, lithographs, cheap pictures framed and unframed, are in good demand, coming mostly from Europe.

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Jewelry is mostly of the French patterns and is widely used in Brazil. High-grade jewelry, diamonds, pearls, and semiprecious stones are handled in large volume. Standard mountings for jewelry are unduly expensive, as a result of the work being done largely in small establishments, and with unusually high-priced labor. Some of our manufacturing jewelers can secure a good trade in several of the Brazilian cities in their standard goods. Silver and plated ware is in good demand, and American exporters seem to have an increasing share in the business. Customs duties favor solid silverware and light-weight ware, and American exporters have not secured the trade they should in this line because of a lack of understanding of these points.

THE DRY-GOODS TRADE.

Aside from cheap cotton piece goods manufactured in the country everything worn by Brazilians of all classes is imported. There are a number of small articles in the American dry-goods trade which could be sold to advantage in Brazil, in spite of the decline of our piece-goods trade. A large number of notions could be introduced. Suspenders, garters, and other goods containing rubber are used comparatively little in many parts of Europe, and hence Brazilians also are not accustomed to them. Some American specialties in such goods could be profitably introduced.

In regard to millinery it should be remembered that in the days of the Empire the upper class wore hats, while the lower class was distinguished by the women wearing no hats, and this state of things may be said to be largely the case at present. There are many thousands of women in Brazil who have never worn a lady's hat of any kind. These class distinctions are gradually disappearing, and while the use of hats by the women of the middle class is not general as yet, it is becoming more and more so, and there is gradually being developed a demand for a cheap grade of hats, which American manufacturers are in a position to meet as well, if not better, than those of any other country. There is also probably a good trade in cheap ready-made clothing for women of this same class. These two lines of trade merit the immediate investigation of American manufacturers. American makers of knit cotton underwear ought to be selling more goods in Brazil than they are now selling.

The sale of curtains and similar goods is confined almost exclusively to those of light weight, the tariff being assessed upon the weight, rather than upon the quality or value of the article. The same rule applies to carpets, both wool and cotton. There are unquestionably many classes of fabrics and cotton and silk manufactures which American manufacturers could present to the public in Brazil with confidence and success. The loss of so much of the market in cotton goods is due to no other reason than inattention to the market.

MACHINERY NEEDS.

OPPORTUNITY FOR SALE OF PUMPS AND WELL-DRILLING EQUIPMENT.

Deputy-Consul-General Joseph J. Slechta, of Rio de Janeiro, writes that while the Brazilian demand for pumps and well-drilling machinery is as yet only a latent one, some facts recently called to his attention indicate that with very little effort this demand might be

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made to assume considerable importance. He therefore gives the following trade suggestions:

It will be of little avail to simply establish agencies in the larger Brazilian cities and expect a successful business to result. There are vast areas, well populated, within easy reach of rail and water transportation, where there is a great dearth of water supply for no other reason than that the inhabitants are actually unfamiliar with the principle involved in digging an ordinary well. The American geologist, John C. Branner, who has just completed a careful survey of a section of territory in the State of Bahia equal in extent to the State of Indiana, is authority for the statement that in that entire region there is frequently great suffering and destitution as a result of a scarcity of water, although an abundant supply would be available through the simple process of digging or boring a well.

Practically the whole of this section of the State, as well as other even more extensive districts, is essentially a stock country, and where running water is not available the inhabitants provide water for their cattle by digging a large rectangular hole, deep enough to tap a water supply. This hole is intended to serve as a sort of reservoir, being perhaps 12 by 16 feet in size and having on one side a gradual approach by which cattle may descend to drink from the pool formed at the bottom. The water of course becomes so bad that after a time only the most terrible thirst will induce cattle to drink it.

A progressive pump manufacturer who would send out a representative to work with local agents and instruct the inhabitants of this and many similar regions in Brazil in the simple process of sinking a drive-point well would be considered a wonder worker and would reap his reward in a good business. There are many more progressive districts of interior Brazil where a practical demonstrator with well-drilling machinery could create a most important demand for such appliances.

Modern progress and conditions will soon begin to supplant the three centuries old conservatism of millions of the inhabitants of interior Brazil and the earliest on the field with the means to hasten this awakening will profit most and will deserve success.

PERU.

COMMERCIAL OPPORTUNITIES.

DEVELOPMENT OF SOUTHERN TERRITORY OPENS UP AVENUES OF TRADE.

Special Agent Charles M. Pepper, writing from Arequipa, under date of January 20, furnishes in detail an interesting report on the importance of southern Peru as a commercial and industrial trade territory. He also reviews the opportunity for extending commerce in that country. His report reads:

Southern Peruvian markets are included in the zone that is bisected by the Southern Railway which runs from the port of Mollendo to Puno on Lake Titicaca, a distance of 330 miles with a branch line from Juliaca, 30 miles this side of Puno, to Sicuani and Checcacupe. The latter place is 150 miles from Juliaca and is the starting point of the Cuzco division, 70 miles in length, work on which has just begun. Ilo, a small port 80 miles below Mollendo, serves a limited local dis-

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trict without distracting from the commerce of Mollendo. Since the bulk of the importations for Bolivia also pass through the latter port it is second in importance only to Callao, and its Peruvian commerce alone would give it this rank independent of the Bolivian traffic.

POOR HARBOR FACILITIES.

There is no natural harbor, and recently a good deal of money has been wasted by bad engineering plans in attempting to provide an artificial one, but these mistakes have been corrected, and a breakwater is now under construction which promises to render serviceable the natural causeway that exists and to provide enlarged port facilities, including warehouse and railway yards. At the present time railway material and general merchandise are piled over several acres of space in the open at Mollendo, awaiting shipment over the Southern Railway, whose facilities proved inadequate for the freight that was turned over to it when the new era of railroad construction began two years ago. Lately some progress has been made in relieving the congestion, and the betterments of the railway, including new bridges, heavy enough for the locomotives that were ordered two years ago, give promise of further improvement. Meanwhile these hundreds of tons of freight piled up at Mollendo serve to give an excellent idea of the nature and the extent of the commerce of southern Peru.

The center of this commerce is the city of Arequipa, situated in the valley of the Chili River, a little more than 100 miles from the coast and with a population of 35,000. The products are agricultural and the local market is not in itself an extensive one, as production is limited to the Chili, the Tambo, the Vitor, and other narrow valleys. These valleys are very fertile; their area, however, being limited, the aggregate production is not large, and the number of inhabitants is small. Some sections are entirely uncultivated and unpeopled. The sandy pampa between the coast and the interior sustains no permanent population and can sustain none until irrigation makes it productive.

AREQUIPA A DISTRIBUTING CENTER.

Arequipa's commercial importance comes from its position as a distributing center, both for exports and imports. It is the headquarters for a number of strong commercial houses that are in close touch with both the United States and Europe, most of which combine both export and import business. Some of these firms have their headquarters in Lima, but others conduct all their foreign business directly with their European or American principals.

There are a number of local industries, including a cotton mill, woolen mills, flour mills, brewery, and soap factories, whose machinery is bought abroad. The most important of these industries is the cotton mill located at Huacho, a few miles out of the city, which produces the coarse cloth known as "tocuyo." This does not, however, fully supply the domestic demand. The export trade centered in Arequipa is based on the products of the mines and the distant rubber forests, the cocoa-palm leaf product, which is the basis of cocaine and its alkaloids, and wools and hides. The gold bullion from the Santo Domingo mines is shipped to Lima and minted there. The silver and copper ores go to the United States or Europe, according to the condition of the market, though for some time past most

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of these shipments have been to Europe. Fine alpaca wools are exported to the United States, but the ordinary grades of wool are marketed in England and Germany. The very fine vicuna wool is taken by France. Hides are sent to England. The rubber product is divided between the United States and Europe, the shipments usually favoring the United States.

IMPROVED TRANSPORTATION FACILITIES.

While Arequipa derives some importance from its export trade, its chief consequence comes from the import commerce which it controls. It is the center of supply, not only for the agricultural and mining districts which lie between the Pacific coast and the Lake Titicaca district, but also for the rubber country of the Madre de Dios and Beni rivers. In former years small quantities of supplies were packed in over the difficult trails by which the rubber was brought out, but with the means of transportation so limited the total volume remained very small. American enterprise somewhat unexpectedly shared the possibilities of this trade, which is yet in its infancy. The Inca Mining Company, after building a wagon road from the railway station at Tiripata to the Santo Domingo gold mines, received a liberal land grant from the Peruvian Government and undertook to continue the roads through the forest or rubber regions to navigable waters. An extensive system of wagon roads was begun five years ago, and while it is not yet completed, transportation facilities already have been provided for large districts, and a direct road opened to a navigable point on the Tambopata River, which is the chief tributary of the Madre de Dios. The company has placed a 150-ton steel frame stern-wheel steamer of the Mississippi River type, made in Chicago, on the Tambopata, and the traffic already developed has been surprising. It indicates great possibilities.

FINANCIAL AID FROM EUROPE.

Various companies holding rubber concessions from the Peruvian Government have been financed in Europe during the last two years. Probably the majority of them will have no better fortune than previous companies, but some of the recent ones appear to have sufficient capital to insure their success, and if they do succeed this means a further opening up of markets in this region, because in making the land grants the Peruvian Government has stipulated that roads shall be built as was done in the case of the Inca Company. But whether the new projects are successful or not the way has been provided for reaching a large body of consumers.

I am informed by those engaged in the trade that the "caucheros," who constitute the rubber camps of the Tambopata and the Madrede Dios districts, have proved very liberal buyers. Even at present prices the business of rubber gathering is profitable and the "caucheros" are able to continue their purchases. Their demand is for articles of good quality. Naturally, provisions of all kinds are most in demand, for bananas are about the only food product grown in the rubber regions, though later rice will be cultivated in some of the adjacent districts.

Chicago packing-house products early established themselves in favor, and they maintain their position. Canned goods, vegetables and fruits, relishes, and similar articles have a steady sale. California

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supplies a portion of the canned fruits, and most of the other canned goods are obtained from the Atlantic coast. There is a considerable importation of crackers and soda biscuits in tins. Textiles, particularly cottons, are bought in large quantities, but the United States has little share in supplying them, Manchester controlling this trade.

Aside from the new markets which have been opened in the rubber country and which promise further growth, the nearer districts, for which Arequipa is the distributing center, consume the customary variety of staple articles. Most of the railway material for the extension of the Juliaca branch line from Checcacupe to Cuzco is on the ground or has been contracted for, though later there will be need of additional rolling stock. The railway-construction camps are established and they add to the demand for general merchandise.

MINING DEVELOPMENT—OIL-DRILLING MACHINERY.

While some new mines are being prospected and old ones developed on a larger scale, the activity in the mining industry at this time is not marked enough to indicate large purchases of machinery. The most energy shown is in prospecting the placer deposits of the Province of Sandio, in the Poto district, with a view to the introduction of dredges following the use of traction drills which were brought from the United States to determine the value of the gravels. Some of the machinery used in the mines of southern Peru has been contracted for through local firms, but most of it is bought directly in the United States by the representatives of the mining companies, several of which have their head offices there.

A large quantity of oil-drilling machinery has been imported from the United States by the American company which is developing the Lake Titicaca fields. The existence of oil in paying quantities having been satisfactorily determined, the company is now seeking to create a general demand for petroleum as fuel, the high cost of fuel in both Peru and Bolivia offering encouraging prospects for the introduction of petroleum. Years ago the Southern Railway was provided with oil-burning locomotives, the supply coming from the Tulara fields in northern Peru. The failure of a regular supply from this source and other reasons caused the railway to return to coal, notwithstanding its expense. Now the use of oil for fuel is said to be again under consideration, though the change is not likely to be made soon. In the meantime a more immediate prospect would seem to be the use of petroleum by the steamers on Lake Titicaca. Further importations of oil-drilling machinery from the United States are, of course, dependent on the use of the Puno petroleum for fuel.

Some electrical installations have recently been made in southern Peru. One contract was secured by the London branch of an American company in competition with other American companies and with the German syndicate. Arequipa has a local electrical company which provides lights to the public street and private dwellings. The tramway system, which includes both passenger and freight traffic, is still operated by mule power.

OPPORTUNITY FOR EXTENDING AMERICAN SALES.

It is the opinion of a number of dealers with whom I have talked that in the districts which are served by Arequipa, a larger use may be found for some classes of American agricultural implements,

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though they do not hold out the prospect of extensive sales in the early future. Several firms in Arequipa keep American farm tools in stock, but no special effort is made to exhibit them. The products of the various valleys are semitropical, but cereals, alfalfa and hay are also raised.

Some of the owners of the large estates are quite progressive and have the latest improved farm machinery so far as it is suitable to the requirements of their land. Mowers and reapers are employed for the alfalfa and hay crops, but there is not a wide field for steam thrashers or steam plows. Not much of an attempt has been made to introduce the disk plow, but there is a good demand for ordinary plows, and this can be stimulated if the manufacturers' agents take pains to provide the means of demonstrating the way to use these implements.

The chacras, or farms, as a rule are small; generally the ground is hilly, and bullocks are employed instead of horses. Notwithstanding the usual talk about the preference of the cholos, or peons, for the pronged stick or wooden beam plow, I noticed in the farming districts around Arequipa a fair number of modern plows, particularly single-handle ones, and I am assured that this is true of other districts also. Where they have been introduced it has been done by the local dealers demonstrating their utility and the methods of using them.

In textiles and clothing of all kinds, Arequipa hardly can be said to be a distributing point for American goods, because so few textiles are imported from the United States for distribution. This trade is divided between England and Germany. Though the Peruvian cotton mills are now turning out bleached goods in addition to the coarse "tocuyo" cloths, this does not seem to have affected the Manchester trade. American boots and shoes are also less in evidence than in other parts of Peru, though some are shipped to the mines and to the railway construction and the rubber camps. The local boot and shoemaking industry appears to be an active one, but some of the American factories which have established a market in Lima might use that as a basis for getting a foothold in Arequipa.

RÉSUMÉ OF BUSINESS CONDITIONS.

Some general information regarding the markets of southern Peru and Arequipa as a trade center may be summed up as follows:

The majority of the leading houses are controlled by the Germans, and the increase of German commercial influence during the last two years has been so notable as to wake the conservative old English houses, of which there are several strong ones, out of their lethargy. The Kosmos steamship line, with its direct service from Hamburg to Mollendo, has helped to maintain a close trade connection.

The recent opening of a branch of the Banco Aleman Transatlantico was a recognition of the importance of the German commerce, which has been a gradual growth, and not a spurt of enterprise. The Italian colony is important, chiefly in retail trade. A number of Syrians and Armenians have built up a good business in Arequipa, and, in spite of opposition, they are spreading through the interior, but their trade is also of a retail character.

The American interests in Arequipa are not predominant in the local trade, but they are of decided consequence in that they represent the most important development enterprises of southern Peru, both in mining and in the new commerce of the rubber country. Their

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predominance in mining and similar enterprises assures American supremacy in supplying machinery. But in view of the large investments of capital from the United States and of the development due to it, there is a question whether a full share of the general trade is obtained.

INFORMATION FOR AMERICAN MANUFACTURERS.

For the information of American manufacturers I forward a list of the leading houses with some other details regarding the business conducted and the lines of goods handled by them. [Names of business firms filed for reference at the Bureau of Manufactures.] In connection with this list the wide application of the term "general merchandise" should be understood. Special lines are the exception rather than the rule, and in most cases general merchandise includes machinery, hardware, dry goods, and other textiles, groceries and provisions, canned goods and even druggists' sundries. A single order from a local house or a merchant in the remote interior will include a score of diverse articles and for that reason the importing houses find it necessary to carry so miscellaneous a stock.

Goods are received both by way of the Straits of Magellan and via Panama, Mollendo being 1,900 miles from the isthmus. Heavy machinery and railway material are usually shipped through the straits because transshipment is avoided, yet there has been an increase of this class of traffic via Panama.

The Merchants' Line is the direct one from New York through the straits. The Lamport and Holt Line dispatches occasional vessels from the English ports and the Kosmos maintains a regular service from the German ports. Some shipments of American agricultural machinery have been made from New York to Hamburg or Bremen and then transshipment, the claim being that a better rate was obtained than could be had either via Panama or direct from New York through Magellan Strait.

In the present demoralized condition of the steamship companies which control the west coast traffic between Panama and Valparaiso, thirty days have to be allowed for mail between Arequipa and New York. An efficient steamship service would provide it in less than twenty days.

CHILE.

OPPORTUNITIES IN IQUIQUE.

GENERAL CONDITIONS FOR SELLING GOODS IN NORTHERN CHILE.

Consul Rea Hanna writes from Iquique, regarding the outlook for the increase of American trade in northern Chile, as follows:

The present seems to be an opportune time for the successful introduction of American goods. Agents of American exporting houses report that with very little effort they can place satisfactory orders, providing that terms similar to those offered by British and German firms are given.

The American manufacturers have been able to dispose of their wares in the States, and consequently have made very little effort to obtain orders from this region. In fact, I was told by a local American merchant that one of the large houses in New York told him that they would not take the trouble to fill his orders, as they could dispose of their products at home. This attitude may be all right for

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the present, but with the opening of the Panama Canal the west coast of South America will be a near-by field for American enterprise, and if an early start is not made to actively enter this market it may soon be too late. The merchants here will have established European connections of long standing; and habit has a strong influence on the placing of orders, particularly when relations have been satisfactory.

LOCAL MARKET REQUIREMENTS.

The British, German, and French firms pay a great deal of attention to export packing, and their goods seldom arrive in poor condition. The subject of packing is at present receiving much more attention than formerly from American shippers. It is very important, as there is hardly a harbor on this coast where freight does not have to be handled in lighters, and quite often in rough water.

The local importers are accustomed to obtaining credit from 90 days to 6 months after the receipt of goods. This would seem to be a condition of affairs which could be regulated by personal conference.

A representative not thoroughly familiar with the Spanish language can do little here, and he must be a capable man to be able to adapt himself to local conditions.

One of the most serious drawbacks to American trade in this country is the absence of banks clearing directly with New York. As an example, when the buying value of a Chilean paper peso, on London, was 11 pence, or 22 cents American gold, an additional 1½ pence was added for buying exchange on New York, making the value 25 cents, or nearly 14 per cent additional. When asked the reason for such a difference, the explanation was that they had to clear through London. This is one of the worst instances I have heard, but merchants are continually required to pay exorbitant rates on New York over the London quotations.

The chief product of this district is nitrate of soda. As many millions of dollars' worth of this is shipped to the United States, it certainly would appear that there is a good chance for American imports into Chile to balance the enormous debit which is thus created.

Of course local conditions can not be changed so as to be more advantageous to American trade without intelligent and concerted effort on the part of American exporters, but it is certain that just as soon as proper measures are taken the market will be found in a receptive condition for American merchandise.

IMPORTS OF COQUIMBO.

INFORMATION AS TO TRADE AT PORT OF NORTHERN CHILE.

Consul Alfred A. Winslow, of Valparaiso, in forwarding a report from Acting Consular Agent A. Baird Kerr, at Coquimbo, states that the development of that part of Chile seems to be rather in advance of most other portions of the country, and offers a good field for American goods. Mr. Kerr's report follows:

The imports of hardware are very numerous, as a great trade is done from this port with the north of Chile. Most of the goods are British and German, but principally British. Here, it is needless to say, there is ample room to establish a large trade with the United States. Visits are constantly made by British and German com-

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mercial travelers, which helps them to maintain their trade. American commercial travelers are very seldom seen. The goods imported are not confined solely to the cheap articles, but to a general variety.

The importations of glassware are principally of German make. A very large trade is done in this line, as the northern ports are also supplied from here.

Canned goods are principally supplied by Great Britain and France, although a large quantity of American goods is seen, mainly fruits, vegetables, and fish. Meats are not now imported, but a large business is done in lard, sausages, hams, fruits, and jams, which are almost wholly imported from Great Britain.

Dry goods are British and German, and only the cheapest of articles are required.

In lumber the United States can be said to have a monopoly of the trade, but a great deal of native lumber is supplied from the southern portion of Chile.

There is a large business done in farmer's and distiller's machinery.

There is certainly a large opening for American business, and, considering the fact that Chile is within easy reach, commercial travelers should be forthcoming. Freights are cheaper than they are from Europe, and this gives an advantage to American goods. The general custom with European manufacturers is to draw for value of invoice at 90 days' sight on receipt of goods, payable at the 90 days' sight rate for bills on London, and if American manufacturers adopted this system they should do good business down this coast. Some Italian and French firms draw at six months from date of invoice, payable with 90-day sight bills.

[Coquimbo importers of the various articles mentioned in the foregoing report are placed on record at the Bureau of Manufactures.]

DEMAND FOR PLUMBER'S SUPPLIES.

ADDITIONAL CITIES ARE PUTTING IN WATER AND SEWERAGE SYSTEMS.

In order to answer several inquiries relative to plumber's supplies and plumbing Consul Winslow reports that increased attention is being given the question of sanitation throughout Chile. Consul Winslow writes:

The National Government has taken an interest and has directed that a large number of the cities put in complete water and sewerage systems. This means a greatly increased demand for all plumber's supplies. Heretofore the demand for this class of goods has been limited to Valparaiso and Santiago, while from now on it will be much more general and the demand should soon be doubled. The Chilean people are, in the main, progressive and quick to grasp improvements that can be brought within their reach.

So far the United States has been supplying only a comparatively small part of this business, when the trade should really be ours. Where American-made goods are in use they are well received, but the trade has not been thoroughly worked. The United States supplied in 1906 only about 3 per cent of the lead pipe imported, which in all amounted to $24,577 United States currency, while of the bath supplies we furnished about 51 per cent of the $21,180 imported.

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The other accessories of the plumbing business largely came from Europe, England taking the lead in such articles as brass tubing, valves, faucets, etc.

There is a good opening here for increased business in this line, and a list is forwarded of parties with whom it might be well for those interested to correspond. [The names may be obtained by business firms from the Bureau of Manufactures.]

GERMANY.

TRADE WITH UNITED STATES.

COMPARATIVE STATISTICS OF IMPORTS AND EXPORTS.

The importations into the United States from Germany during the calendar year 1907 increased more than ten million dollars over the previous twelve months, while the exports to Germany advanced more than thirty million dollars in the same period. The heavy advance in shipments to Germany was mostly in raw cotton, which was twenty-two million dollars greater than in 1906, and forty-one million dollars greater than in 1905. The German textile manufacturing industry has been making rapid progress, and the vast increase in the number of spindles and looms in the Empire demands a proportionately heavier supply of raw material, which only the United States is in position to adequately supply. This German textile prosperity during the past year was reflected in the greater sales of fabrics to foreign countries, shipments to the United States alone having advanced several million dollars.

Germany's purchases of American corn dropped from $12,164,347 in 1905 to $8,608,101 in 1907, but her takings of American wheat advanced from $2,200,452 to $11,750,242, and of American flour from $646,782 to $2,917,129. Shipments of copper to Germany also advanced by several million dollars.

AMERICAN MEAT EXPORT RECESSION.

The past year marked a great decline in the sale of American meats in Germany. This affected all items except canned beef. The exports in 1905 reached almost three million dollars, declined one hundred thousand dollars in 1906, and dropped to less than one million dollars in 1907. The following are the figures:

	1905.	1906.	1907.
Meats:			
Bacon	$1,298,468	$890,872	$106,787
Beef, salted or cured	1,018,587	1,140,077	302,962
Canned beef	100,736	210,898	234,820
Hams	90,265	84,650	9,650
Pork, salted	436,176	519,314	252,571
Total	2,944,232	2,845,811	906,790
Alimentary fats:			
Lard	18,366,015	17,600,508	15,202,721
Lard compounds	376,941	342,345	272,337
Oleo and oleomargarine	2,573,307	3,406,125	3,783,488
Butter	4,975	7,867	458
Tallow	346,113	523,887	614,347
Total	21,667,351	21,880,732	19,873,351
Grand total	24,611,583	24,726,543	20,780,141

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AMERICAN MANUFACTURES IN GERMANY.

The total exports from the United States to Germany last year aggregated $274,371,365, the bulk of which was raw materials. The principal articles of American manufacture sold to the Empire, aside from foodstuffs which underwent processes of preparation for market, compared to the two previous years, were as follows:

	1905.	1906.	1907.
Agricultural implements	$1,474,145	$1,864,699	$2,598,047
Builders' hardware	772,381	959,091	1,083,588
Electrical machinery	115,902	101,192	98,389
Metal-working machinery	1,298,010	2,190,042	2,247,836
Sewing machines	1,021,873	1,051,444	1,156,663
Typewriting machines	882,145	988,180	1,161,415
Leather:			
Splits, sole, etc	1,322,123	1,799,140	1,151,461
Boots and shoes	393,357	373,368	603,345
Furniture	126,865	164,285	142,197
Total	7,406,801	9,491,441	10,242,891

IMPORTS OF GERMAN MANUFACTURES.

The imports of the United States from Germany last year reached a total of $161,117,970, consisting mostly of manufactured goods. Raw rubber from Hamburg figures at about three million dollars annually, potash fertilizer at a little more, and undressed furs average four million dollars annually, these constituting the largest lines of raw materials furnished by Germany to the United States. The leading articles of German manufactured wares sold in this country during the past three years are shown as follows:

	1905.	1906.	1907.
Cotton goods:			
Cloths	$543,376	$578,481	$588,703
Knit goods	5,945,807	7,267,617	8,384,830
Laces and embroideries	5,438,882	5,975,154	5,341,332
Silk goods	5,596,084	6,681,667	8,823,866
Wool dress goods	1,628,391	2,156,304	2,759,458
Wool cloths	1,338,422	1,844,488	1,769,493
Linens, etc	2,068,767	2,251,100	2,326,220
Gloves	2,024,215	3,407,565	3,850,030
Coal-tar colors and dyes	4,446,324	4,541,101	4,796,228
Furs, manufactured[a]	3,762,276	3,799,301	3,674,175
Earthen and china ware	5,042,605	5,135,913	5,585,580
Toys	5,011,465	5,949,411	7,112,891
Wines	1,359,812	1,480,794	1,448,340
Total	44,206,426	50,978,896	56,461,146

[a] Not including undressed furs.

FOREIGN TRADE REVIEW.

LAST YEAR MAKES A NEW HIGH RECORD—IRON PRODUCTS.

Consul-General Richard Guenther, of Frankfort, sends the following brief summary of the foreign trade of Germany in 1907:

The imports amounted to 66,008,671 tons, representing a money value of $2,108,500,000, whereas goods exported from Germany weighed 44,966,973 tons and were worth $1,694,700,000. The imports show an increase of $424,800,000 and the exports of $152,800,000 as compared with those for the year 1906. The total foreign trade of Germany for last year reached nearly $3,800,000,000, and is the

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largest in the history of the country. It should be remembered, however, that the great increase in its money value is largely owing to the great advance in the price of both imported raw materials and exported manufactures.

According to the published statement of the Association of German Iron and Steel Industries, during 1907 there were produced in Germany 13,045,760 metric tons (metric ton=2,204.6 pounds) of pig iron, which exceeds the production of the preceding year by 570,693 tons.

Germany's foreign trade in iron and ironware for the year 1907 comprised 3,452,202 tons exported, valued at $178,502,618, and 813,349 tons of $27,496,422 value of imported iron and ironware. Compared with the preceding year the foreign trade in this line shows a net increase of $6,256,546.

PRODUCTION AND IMPORTS AND EXPORTS OF COAL.

The statistical bureau of the Empire publishes the following data about the coal trade in Germany for the calendar year 1907, the table giving the output in metric tons (metric ton=2,204.6 pounds):

Stone coal	143,222,886
Brown coal (lignite)	62,319,802
Coke	21,938,038
Black coal briquettes (pressed lumps)	3,524,017
Brown coal briquettes	12,890,461

Germany's coal and coke production of 1907 increased by about 14,500,000 tons over that of the preceding year, but the output of brown coal was less by 1,610,000 tons.

In 1907 Germany imported 13,720,296 tons of black coal (nearly all from England), also 8,963,103 tons of brown coal (from Austria), 584,221 tons of coke, and 195,404 tons of pressed coal blocks. The coal exports of Germany last year consisted of 20,017,688 tons of black coal, most of which went to Austria, Holland, Belgium, Switzerland, and France; 3,790,642 tons of coke, mostly shipped to France and Austria, and 837,775 tons of pressed coal blocks, about half of which were sent to Switzerland.

TRADE WITH ITALY.

STEADY GROWTH, ESPECIALLY IN SALES OF GERMAN GOODS.

Consul Southard P. Warner, of Leipzig, states that Germany's trade with Italy showed an unusual increase during the year 1906, adding that the increase in 1905 was also large. He has compiled the following review covering a decade:

The following table gives the value of Germany's trade (not including the precious metals) with Italy for the five years 1902–1906 and also for 1896:

	1896.	1902.	1903.	1904.	1905.	1906.
Imports	$31,420,000	$44,980,000	$46,620,000	$44,480,000	$50,100,000	$57,360,000
Exports	19,900,000	29,850,000	31,180,000	33,630,000	38,940,000	54,950,000

As will be seen from the statement, Germany's imports from Italy in 1906 show an increase of $7,260,000, or 14.5 per cent over those of 1905. The exports show an increase of 16,010,000, or 41.1 per cent.

During the ten years, 1896–1906, the imports increased $25,940,000, or 83 per cent, and the exports increased $35,050,000, or 176 per cent.

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The increase in exports was, therefore, comparatively, twice as great as the increase in imports.

The principal articles of export from Germany to Italy are the various products of the metal, textile, chemical, and leather industries. The large increase in the exports in 1906 was due chiefly to the shipments of machinery and parts thereof, locomotives, locomobiles, bar-iron, and car axles. Woolen goods, tar colors, woolen tops, and hard coal were also important articles of export.

COMMERCIAL INFORMATION BUREAU.

COOPERATIVE ORGANIZATION AMONG EXPORTERS TO PROMOTE TRADE.

Consul-General Richard Guenther, reporting from Frankfort, furnishes the following information regarding another cooperative movement in Germany toward promoting the Empire's foreign trade:

The great commercial associations and combines of Germany have prepared a plan for establishing a Foreign Trade Information Bureau, which, in the manner of the Bureau of Manufactures at Washington, is to answer inquiries concerning export matters and to supply information to German manufacturers, contractors, promoters, etc., so as to extend Germany's trade and interest sphere abroad. It is also intended to establish information agencies at foreign points which are expected to act in connection with the German consulates and the official experts attached thereto. The project as worked out has been submitted to the Imperial Government of Germany, and the Industrial League is charged with carrying it out. Business circles will soon be made acquainted with all details.

ITALY.

INCREASED IMPORTS, DECREASED EXPORTS—SHARE OF UNITED STATES.

Consul James E. Dunning, of Milan, forwards the following report on Italy's foreign trade for the first nine months of 1907, prepared by Clerk Siersdorfer, of his consulate. The report says:

The Milan custom-house supplies the following statement of Italian exports and imports for the first nine months of 1907, compared with the corresponding period of 1906:

Articles.	Imports.		Exports.	
	1907.	1903.	1907.	1903.
Spirits, drinks, and oils	$6,945,951	$5,915,811	$16,918,226	$18,071,102
Tobacco, drugs, and spices	8,943,748	8,327,884	913,637	975,959
Chemicals, medicines, etc	15,821,691	14,217,546	8,973,790	9,863,254
Dyes and tans	5,509,149	5,138,291	906,234	1,299,517
Hemp, flax, jute, etc	7,233,465	6,620,559	8,924,759	9,452,433
Cotton and cotton goods	51,189,603	42,480,523	19,279,313	19,672,062
Wool, horsehair, and fur	20,737,895	18,039,499	4,242,129	4,917,075
Silk and silk goods	27,776,715	26,560,380	86,979,230	100,924,793
Wood and straw	19,002,022	16,585,222	7,863,390	7,135,952
Paper and books	6,468,741	5,263,082	3,543,113	3,126,809
Hides and skins	13,193,073	12,751,248	5,498,946	6,173,826
Minerals, metals, etc	90,767,220	69,755,689	8,441,321	9,451,641
Vehicles	10,820,890	5,093,238	3,478,301	1,855,313
Stoneware, glass, etc	46,361,675	42,904,228	11,669,289	12,727,015
Rubber and gutta-percha	4,054,121	3,989,368	1,083,556	1,298,577
Cereals	40,323,880	48,512,313	34,426,321	27,967,980
Animals and their products	20,639,410	18,898,169	25,571,587	27,059,089
Precious metals and coins	4,981,457	3,586,787	7,353,480	5,763,699
All other goods	22,397,785	10,338,412	759,359	1,167,129
Total	423,168,491	364,981,229	256,825,961	268,903,225

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Imports into and exports from Italy for the first nine months of 1907 are reported as follows for six of the most important countries:

Country.	Imports.	Exports.	Country.	Imports.	Exports.
United States	$56,341,332	$31,760,273	Austria	$35,293,033	$20,730,709
Germany	72,564,526	38,614,223	France	32,574,540	26,593,856
Great Britain	71,621,468	21,318,973	Switzerland	9,622,015	43,024,755

TRADE WITH SOUTH AMERICA.

Exports from Italy to South America for the first nine months of 1907 amounted to about 98,036 tons, whereas imports into Italy from that source were about 80,001 tons. Italy's exports to South America consist largely of wines, oils, fruit, medicines, hats, and cotton goods. Woolen goods, silk goods, furniture, books, metals, marble, sulphur, rice, chestnuts and other nuts, preserves, cheese, and sundries also seem to find ready sale in South American markets and are showing a steadily increasing exportation. Nitrate of soda from Chile forms one of Italy's most important importations from South America, 38,053 tons having been imported during the first nine months of 1907. Dyeing and tanning woods, coffee, hides and skins, cereals, raw wool, and fats form the bulk of the other importations from South America.

PURCHASES FROM THE UNITED STATES.

The following table shows Italy's imports from the United States, in weights and values, for the first nine months of 1907, as received by the consulate from official sources:

Articles.	Tons.	Value.	Articles.	Tons.	Value.
Cotton-seed oil	2,813	$325,784	Mineral phosphates	50,457	$486,939
Mineral oils	55,768	2,254,047	Stone and earthen ware, etc	4,515	219,634
Tobacco	9,456	2,245,555	Coal	9,951	53,847
Sulphate of copper	1,171	146,873	Rubber and gutta-percha	30	115,221
Solid paraffin	7,662	916,750	Cereals	169,480	6,082,009
Chemicals, medicines, etc.	10,447	523,416	Salted meats and lard	3,595	1,042,393
Raw cotton	123,757	32,005,962	Fish	2,699	442,742
Lumber	104,754	1,888,505	Pork fat	1,298	338,136
Shooks and staves	10,210	409,932	Other fats	3,544	465,130
Hides and leather	216	196,474	Sundries	537	75,849
Raw copper, brass, and bronze	7,894	3,351,831	All other goods	.....	1,328,612
Raw lead	2,154	187,017			
Machines and parts	9,109	438,110	Total	591,854	56,341,332
Scientific instruments	235	771,614			
Automobiles.....number	52	28,950			

SHIPMENTS TO UNITED STATES.

The following table shows Italy's exportations to the United States in values for the first nine months of 1907 as received by the consulate from official sources:

Articles.	Tons.	Value.	Articles.	Tons.	Value.
Wines	6,566	$732,435	Hemp, raw and carded	922	$194,737
Olive oil	8,875	1,802,041	Hemp, linen, and jute manufactures	1,151	334,083
Vegetable extracts	2,544	764,087	Cotton textiles	166	291,044
Calcium citrate	1,882	472,078	Wool and waste	58	28,178
Raw tartar	3,870	672,219	Horsehair	137	137,809
Chemicals, medicines, resin, perfume, etc	20,846	601,774	Raw silk and waste	1,512	11,818,518
Sumac	4,349	163,278	Silk ribbon and textiles	589	727,224

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Articles.	Tons.	Value.	Articles.	Tons.	Value.
Other silk goods	61	$70,059	Oranges and lemons	93,299	$1,633,359
Furnitureand woodenware.	1,016	232,758	Dried fruits	2,840	565,876
Straw braid	501	340,066	Preserves	3,952	845,726
Paper and books	471	292,395	Tomatoes in cans	5,373	414,757
Raw hides	681	228,705	Cheese	8,437	1,320,313
Kid gloves and hosiery, pairs	173,000	80,867	Hats, unfinished	171	198,018
Tanned hides and leather goods	4	12,159	Hats, finished....number..	2,312,600	748,261
Machines and parts	119	25,669	Coral	32	148,224
Automobiles .....number..	39	170,612	Sundries	285	29,143
Marble	49,714	800,950	Art objects	.....	292,202
Sulphur	4,043	74,691	All other goods	.....	2,090,383
Macaroni and flour	31,998	2,405,745	Total	251,464	31,760,273

Of the $31,760,273 worth of exports of Italy to the United States during the first nine months of 1907, a little more than half the total, or $15,998,625, was the value of the declared exports invoiced through the Milan consulate alone. Raw silk, which forms the largest item shipped from Italy to the United States, was, as usual, practically all invoiced through the Milan consulate.

As is shown by the first table of this report, the Italian exports decreased, while all imports, except one (cereals), largely increased. Importations of minerals, metals, etc., and cotton and cotton goods show the most marked increase. Machines form the bulk of the former importations. The increase in the importation of cotton goods is largely due to the limited capacity of Italian cotton mills. It is predicted that the importations of machines and cotton goods will decrease with Italy's future. If Italy's commercial progress continues at the present rate, within a few years the native manufacturers will be equipped to produce this stock themselves.

PORTUGAL.

A DESIRABLE FIELD FOR INCREASING AMERICAN SALES.

Consul-General Louis H. Aymé, of Lisbon, reports that Portugal imports annually more than $30,000,000 worth of merchandise in excess of its exports, which indicates that the country is one eminently desirable for American merchants and manufacturers to work in. He adds:

Intelligent individual effort is absolutely necessary for success. The only way in which business can be secured here is to have a representative on the ground who shall study the needs, fashions, and even fancies of their prospective customers and conform to these. It may be that American patterns, fashions, methods of packing, etc., are the best in the world, but if they are not what the Portuguese want, so far as he is concerned they are the worst in the world. The Portuguese does not want to be told or taught what he should use; he knows just what he wants. He will naturally make his selection from among those who offer him what he wants in the way that he wants it.

AN EXAMPLE OF WRONG METHODS.

This may be made clearer by an example: I lately persuaded an importer here to send an order to the United States for canned goods, hams, jellies, and other preserved foods. The order was very

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carefully made up and for each article a specified and well-known brand was indicated. Explicit instructions were given that these directions should be rigidly adhered to. A letter was received acknowledging the order and promising compliance therewith. Later, advice was received that the goods were shipped. After the arrival of the goods here, and after they had been passed through the custom-house and the duties paid, it was discovered that the shipper in New York had in no case followed the orders as to brands, but had purchased all of the goods from a single firm, one not known at all in Portugal, and gave as a reason therefor, in a subsequent letter, that by so doing he had saved considerable time and money to the purchaser. Possibly the goods sent were of as good quality as those ordered, which is doubtful, but even had they been, it would be difficult to persuade the Portuguese purchaser that they were. He is very much disgusted and it would be difficult almost to the point of impossibility to persuade him to repeat the experiment. If this gentleman had ordered from a French house, for example, twelve different brands, let us say, of green peas, in an order of two dozen cans, his order would have been exactly carried out. Americans can not secure trade of Portugal by trying to work off on it at sporadic intervals either inferior goods or surplus stock. To secure this market we must be ready to furnish regularly both as to quantity and quality just what this market desires and on the same as or better terms than it can secure them elsewhere.

SPAIN.

ORGANIZATION OF LARGE CONCERN TO PROMOTE AGRICULTURAL INTERESTS.

Consul-General Benjamin H. Ridgely makes the following report from Barcelona on trade combinations in Spain:

Syndicates have already been formed in the sugar, glass, alcohol, textile, and other national industries. The latest organization relates to agricultural machinery. Under the presidency of King Alfonso XIII, supported by an influential committee comprising ministers of the Crown and many of the largest landowners in Spain, a society has just been formed under the style of the "Sindicato Nacional de Maquinaria Agricola." Its purpose, as its name implies, is to disseminate and foster the use of agricultural machinery in this country, and with this object in view to unite under one controlling management the interests of all those engaged in the manufacture of either agricultural machinery or of those appliances used in preparing agricultural products.

The syndicate will have its headquarters at Madrid, and the capital will for the present be limited to about 1,000,000 pesetas (silver peseta now worth about 17¼ cents). Each firm joining the syndicate will be required to subscribe to a certain number of shares in proportion to the importance and extent of its sales. Preference will naturally be given to native industry, but the syndicate will, whenever necessary or advisable, also purchase foreign agricultural machinery and tools, so that this new enterprise may result indirectly in promoting the sale of American agricultural machinery in Spain.

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DENMARK.

MARKET REQUIREMENTS FOR STEREOSCOPIC VIEWS TRADE.

Consul-General Frank R. Mowrer, in a report from Copenhagen, Denmark, says that the opportunities for the sale of stereoscopic views were never as good as at the present time, the general market for which he explains:

The conditions that make these opportunities are the great increase in travel for pleasure and instruction and the development of amateur photography. In a sense this is an age of collectors, of illustrated post cards, postage stamps, prints, varieties of bric-a-brac, rugs, furniture, etc. In the case of stereoscopic views their low price, endless variety, and instructive value can make them peculiarly attractive to collectors if properly brought to their attention.

The form and size of the view is important, and the stimulated interest it gives depends much on the distinctness and clearness of the photograph for perspective and the relative position of objects. Uniformity of size is essential to permit the use of one holder for a universal series, which can only give the merited popularity of stereoscopic views to collectors. This holder should be collapsible, made of a light metal, and should contain lenses carefully selected as to a uniform strength and not easily breakable.

The instructive value of these views and their use for educational purposes can not be estimated. If carefully prepared series of views of the "beaten tracks" through Europe were made no more popular souvenir at a low price could be offered to the tens of thousands of tourists who annually travel so extensively. They would always remain a source of instruction and pleasure to them and their friends.

Suitable series could easily be adopted to assist in teaching geography in the public schools, and as time passes their value would increase to assist in the study of history. For example, a series on Japan and Japanese life, the construction of the Panama Canal, the extensive developments in Brazil and Argentina would convey more accurate and intelligent impressions than chapters of descriptive matter.

[The consul-general names three Copenhagen firms which might become interested in the development of this trade in Denmark. Their names may be secured from the Bureau of Manufactures.]

JERSEY ISLAND.

CATTLE SHIPMENTS A SPECIAL FEATURE—IMPORTS AND EXPORTS.

Consular Agent E. B. Renouf, of St. Helier, in his report on the foreign commerce of Jersey Island, located in the English Channel, says:

During 1907 the number of Jersey cattle exported to the United States was 446, valued at $67,761, as against 241 head, valued at $30,265 in the preceding year. The island authorities continue to take the most stringent precautions against infection from the Continent of cattle diseases. Foreign cattle are not allowed to land and the imports of hay and straw from the Continent is prohibited.

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There is no indication of tuberculosis among Jersey cattle. The Danes continue to make large purchases of relatively low-priced animals for dairy purposes, but the best grades find their way to the United States.

The value of the early potato crop exported during 1907 is stated to be $1,835,933, an increase of $335,934 over 1906. The total imports into the island during 1906 were valued at $5,225,818, against $5,306,456 in 1905, while the exports therefrom amounted to $3,473,751 and $3,653,919, respectively, for the two years. The imports and exports of the principal articles, in quantities, are shown in the following comparative statement:

Articles.	1905.	1906.	Articles.	1905.	1906.
Imports.	*Tons.*	*Tons.*	*Imports*—Continued.	*Tons.*	*Tons.*
Animals: Horses	a 289	a 263	Salt	567	570
Breadstuffs:			Sugar	1,145	1,259
Barley	620	813	Timber	c 133,302	c 226,759
Bran	2,033	2,451	*Exports.*		
Buckwheat	333	230			
Flour	5,847	5,781	Animals:		
Meal, etc	541	1,042	Bulls	a 109	a 104
Oats	2,502	2,873	Cows, etc	a 1,764	a 1,819
Bricks	92	138	All other	a 71	a 64
Cement, etc	2,079	2,625	China stone	4,091	3,854
Coal	54,081	58,671	Coal tar	d 192,400	d 148,812
Eggs	164	175	Flowers and bulbs	133	189
Fertilizers	8,620	8,812	Gravel	4,852	4,486
Paraffin	b 6,272	b 6,073	Potatoes	48 182	52,422
Potatoes	3,220	1,841	Vegetables		289
Provisions	3,203	3,274			

a Number. b Barrels. c Cubic feet. d Gallons.

No American ship entered Jersey ports during the last year. In the absence of direct means of communication it is impossible to trace imported goods to their original source, but it is safe to say that Jersey absorbs proportionately to the number of its inhabitants (52,576) and their relative prosperity, at least as large a quantity of American products as a community of corresponding number and pursuits in England.

PERSIA.

IMPORTS AND EXPORTS AND THE COUNTRIES TAKING PART THEREIN.

The following information and statistics are compiled from a printed report of the British vice-consul covering the foreign trade of Bushire, the principal port of Persia, in the Gulf of Persia:

The imports and exports into and from Bushire during the years ended March 31, 1906 and 1907, from and to the principal countries, were as follows:

Countries.	Imports.		Exports.	
	1906.	1907.	1906.	1907.
United Kingdom	$1,567,825	$1,620,262	$450,710	$849,511
India	857,744	1,282,517	742,706	736,065
France	280,879	496,475	16,128	15,422
Austria-Hungary	150,089	326,575	15	1,800
Germany	127,813	123,896	51,414	117,905
United States	7,162	35,934	5,420	78,837
Other Countries	716,479	308,228	1,020,569	1,112,676
Total	3,707,941	4,193,887	2,286,962	2,912,216

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The principal imports in 1907 were: Cotton piece goods, $1,775,975; loaf sugar and candy, $639,229; arms and ammunition, $156,940; cotton sewing thread, $66,111; matches, $51,225; drugs and medicines, kerosene, mercury, and hardware, copper bars, sheets, and wire.

Of the imports cotton piece goods amount to nearly 39 per cent of the whole, and of this import $1,345,354 worth was composed of British manufacture, imported direct from the United Kingdom, being equal to 75 per cent of the whole.

According to the British vice-consul, no less than 157 British steamers, with a total tonnage of 221,330 tons, cleared from Bushire in 1907, but the competition of other steamships caused the British lines to reduce their rates to the United Kingdom from $7.30 to $4.86 per 1,680 to 2,016 pounds or 40 cubic feet. Freight to Hamburg was also reduced. Freight per British lines to New York, by transshipment, is $9.30 for carpets and $8.28 for cargo.

DETAILS OF PRINCIPAL IMPORTS.

In relation to imports which should interest American exporters, the vice-consul writes as follows:

One of the immediate effects of granting a constitution has been an increase in the number of news sheets and journals printed in the different towns of Persia. The paper on which these are printed is exceedingly poor in quality, and at one time during the year the publishers were hard put to find sufficient suitable material. Very large supplies of cheap gray and white thin foreign writing paper are in use.

There was an increase of British piece goods of $94,000, and an increase of Indian piece goods of $292,000; this, however, is largely British piece goods transshipped at Bombay. White shirtings, 40 to 41 yards, still hold first place. In March, 1907, they stood at $3.24. They are followed by white mulls, 20 and 22 yards, chintz "Dubahrs," white, 65 yards, and chocolate, 60 yards, and Turkey-red twills, 50 yards. The print market up country is reported spoiled, to a certain extent, by Russian prints, but Shiraz is reported still true to Manchester. It is estimated that as much as 60,000 pieces, or 240 bales, of dyed piece goods have been imported during the past year into Bushire, three-fourths of which were mull or "Kasawari," as it is termed when dyed with indigo. Black Italians of good quality are coming into fashion for the "cheddars" in preference to black twills. Cheddars are the black outer garments worn by Persian women of all classes, which cover the head and descends to the skirts. This is an instance of the growing inclination of the better class Persians toward luxuries. The German and Russian agencies in Bushire have been busily employed in dispatching to Europe samples of British goods for imitation, but the imports of German and Russian piece goods have declined.

PRINCIPAL EXPORTS.

In 1906–7 by far the largest proportion of the increased exports went to the United Kingdom. The rest of Europe, except France, increased their imports from Persia, and there is a noticeable extension of exports to the United States.

There was great development in the exports of cummin seed, which is usually packed in bags of 168 pounds. Black seeds (Siah-dane) were in demand. These are used as ingredients for pickles, as well as possessing medicinal qualities.

The export of almonds in 1906–7 is the largest on record. To save freight, almonds are shelled in the producing districts, almonds in the shell being seldom shipped. The prices in Bushire during the year were, approximately, $4.42 to $5.14 per 124 pounds for almonds in shells, and for almond kernels $1.05 to $1.22 per 6½ pounds. Dried grapes are now going forward to the United States.

The commerce in gum tragacanth, known to the Persians as "Katyra," has sprung up within the last few years, and seems likely to take still further

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hold in the population. There have been amounts, not unimportant, sent to the United States, Germany, and France.

The exports of drugs and medicines embrace rosewater, asafoetida, linseed poppy seed, licorice, sesame, madder root, gallnuts, salep, jujube, castor seeds, colocynth, oxtongue flower, and gunjide. The seeds of the latter are largely used for adulteration of opium, and have now, it is reported, reached half the price of opium. The export of opium advanced nearly $165,000 in 1905–6, but still fell short of the average. The British market proved much more satisfactory than the Chinese, and exports to London were $121,660. Licorice grows wild in abundance on the Marvdasht Plain, near Shiraz, but, owing to heavy transport charges, is practically left untouched.

The exports of raw and undressed goatskins are yearly growing. In March, 1906, the prices in Bushire ranged from $5.02 to $8.65 per 20 skins. These prices have gradually fallen to $3.20 and $4.40. Nearly all the export goes to India. A better knowledge and improved system of preparation for export have conduced to this increase, but the process still requires improvement whereby the demand would certainly extend to the United States.

CHINA.

SOUTHEAST MANCHURIA.

TRADE CENTERS OF DISTRIBUTION—DEVELOPMENT OF RESOURCES.

Vice-Consul-General Charles J. Arnell, of Mukden, who is in charge of the American consular establishment at Antung, furnishes the following report on the trade of southeastern Manchuria, especially the Yalu River region, and its probable future:

The centers of trade of southeastern Manchuria are Antung, Tatungkou, Fenghuangcheng, Takushan, Kuantien, Tunghuahsion, Huajen, Pingtingcheng and Hsiuyen. Of these places the three first named only have been opened to foreign trade; and only Antung, Tatungkou, and Takushan are seaports. While each of the interior cities has its own area of distribution and collection, these areas are all included in the spheres of trade of some one or other of the port cities through which the exports and imports of the former must naturally pass. The seaports, therefore, have the greatest opportunity for commercial growth.

FAVORABLE SITUATION OF ANTUNG.

As a trade center and as an influence in the development of southeastern Manchuria, Antung is at present by far the most important of these cities. Its sphere of trade extends northward to the headwaters of the Sungari, westward to Hailungcheng, and southward to Tatungkou, and includes the towns along the Korean side of the Yalu basin. The situation, 30 or 40 miles from the mouth of the Yalu, is rather favorable for shipping. Vessels drawing as much as 10 feet are able to reach it, while the largest steamers may anchor off Tasarugi Island 25 miles below the town, between which points goods are transported by lighter. A little dredging in the neighborhood of Antung should enable steamers now compelled to anchor amidstream to lie up against the bank and load and unload their cargoes directly. Steamships now run regularly to Chefoo, Tientsin, Dalny, Chemulpo, Fusan, Moji, and Kobe. Junks and other small craft ascend the river for a distance of 200 miles, supply-

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ing the bordering region. The Yalu, however, has the serious disadvantage of being closed to navigation during the four months of winter.

There are railway connections with Seoul, Chemulpo, and Fusan; and a light line, to be altered within two or three years to standard gage, connects with the South Manchurian Railway at Mukden.

RAILWAY CONNECTIONS AND PROPOSED EXTENSIONS.

The Korean Railway, which extends for a part or the whole of the distance to the same points which may be reached by water from Antung, is unable to compete with steamer transportation. The light railway to Mukden is worked to its full capacity, but owing to its inadequate facilities has only an insignificant share in the trade. The extension of the terminus of the Korean Railway from New Wiju (Korea) to Antung may possibly, if aided by some reduction in freight rates, render the railway freight traffic profitable, and should, in any case, considerably increase the small share of Antung trade now enjoyed by the Korean line during the four winter months, when the river is closed to navigation. The production and consumption in north Korea is said to be an insufficient basis for a paying freight traffic for that portion of the Korean Railway extending between Pingyong and New Wiju, and the only other source from which it could be derived is Antung. With the present high transportation charges, however, the amount of traffic is so small as to be unprofitable. The passenger traffic over the Korean line to and from Antung is always considerable, but alone is not sufficient to make the enterprise reasonably remunerative. The construction of a railway between New Wiju and Yongampo, a town near the anchorage of the larger vessels trading with Antung, has been discussed. In this event the bulk of the goods now transported to and from Antung by lighter would probably be carried by rail, which should be as cheap and more prompt and satisfactory.

The bridge across the Yalu between New Wiju and Antung, which is expected to be completed within another two years, will be built off the Japanese concession at the latter place. If it is to be a closed bridge, as is said, it will prove a serious drawback to native and foreign trade at Antung, inasmuch as it would prevent steamers from anchoring off the Chinese town and proposed foreign concession. It is to be hoped that the authorities will either construct a drawbridge or select another site.

TRADE AND POPULATION OF ANTUNG AND TATUNGKOU.

The three leading exports of Antung, in the order of their importance, are timber, silk, and beans. The imports consist of cotton goods, petroleum, flour, sugar, cigarettes, and miscellaneous articles. The value of the annual trade of Antung is estimated at about $8,000,000, the exports and imports being about equal.

The permanent population of Antung comprises between 15,000 and 20,000 Chinese, 6,000 Japanese, 20 Europeans and Americans, and a number of Koreans. There are 110 Chinese, 15 Japanese, and 3 occidental business firms or agencies of importance, while the Hu

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Poh, or Chinese Government bank, and three Japanese banks have branches in Antung.

Tatungkou is situated south of Antung about 15 miles from the mouth of the Yalu. Vessels trading there anchor some 4 miles from the town, and the goods are carried back and forth by lighter over a mud creek. Steamships running between Antung and Chefoo usually stop at Tatungkou en route. The sphere of trade is comparatively small. The exports and imports of Tatungkou are of the same nature as those of Antung. Its present trade is valued at somewhat less than $1,000,000 annually.

This town formerly had a larger trade in timber than Antung. Since the late war, however, and the subsequent organization and activity at Antung of the Japanese timber bureau the trade in lumber has become concentrated almost entirely at Antung. The Chinese population of Tatungkou is about 6,000. There is a small Japanese colony consisting mostly of petty dealers in miscellaneous articles.

Fenghuangcheng lies about 40 miles to the northwest of Antung, and is connected therewith by road as well as by the light railway running to Mukden. Situated within the sphere of trade of Antung, it is merely a center of distribution and collection for its own immediate vicinity, and its present business is insignificant. Fenghuangcheng was founded for political, not commercial, purposes, having been the capital of the intendant of the Eastern Marches, the administrative official of the Yalu region, until the recent removal of the seat of government to Antung. There is no likelihood that Fenghuangcheng will, even with the fullest development of southeastern Manchuria, attain any considerable commercial importance. The total population is about 18,000, including 200 Japanese.

COMMERCIAL IMPORTANCE OF TAKUSHAN.

Takushan, situated southwest of Antung, on the Tayang River, about 7 miles from its mouth, was founded some one hundred and twenty-five years ago by merchants from Shantung, Shansi, and Canton, who were attracted by the timber and silk resources of this region; and until the later establishment of Tatungkou, with the almost immediate diversion of the timber industry thereto, was the most important commercial port in southeastern Manchuria.

Steamers of any size may anchor off the river mouth, and their cargoes may be loaded and unloaded by junk or lighter. The river is open to navigation throughout the year. It is said that the short stretch of river between the town and the sea could be dredged with comparatively small expenditure, so as to enable vessels to anchor off the town. Steamships at present ply between that port and Chefoo, Tientsin, and Dalny; most vessels trading with Antung stop there en route.

Takushan is connected by cart roads with Tatungkou, Fenghuangcheng, Hsiuyen, and Kinchou, which at present constitute its only routes of communication with the interior. The sphere of trade of Takushan contains not only some mineral wealth, but also extensive silk and agricultural resources. The percentage of arable land is larger than in any of the regions dependent upon the other marts of southeastern Manchuria. The exportation of beans and bean cake

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is said to equal that of Antung and Tatungkou combined. The present trade is about equal in value to that of Tatungkou.

The population of Takushan is given as between 8,000 and 10,000. Although the town has not been opened to foreign trade, a considerable Japanese colony has for some time been settled there, engaged chiefly in the exportation of bean cake and the importation of Japanese miscellaneous goods. The absence of a maritime customs house like those at the open ports obviates the necessity of paying the usual duties leviable on foreign imports and exports, a condition which can not but result in placing goods handled in the regular way at a considerable disadvantage.

THE RAILWAY A FACTOR IN FUTURE DEVELOPMENT.

The interior towns must under ordinary circumstances continue to be no more than centers of distribution and collection for limited areas of a sparsely inhabited territory. With the future extension of the railway throughout southeastern Manchuria, however, the trade areas of the towns which it touches will naturally expand, and with the opening of mines the towns in the surrounding region will be likely to increase in importance. The factor which will exert the greatest influence on commercial development is the railway. The only railway at present projected through southeastern Manchuria is the standard-gage line to replace the present Antung-Mukden road. According to the provisions of the Japanese additional agreement of 1905, this will be built and operated by Japan, with the right reserved to China of buying it over at the expiration of fifteen years from the date of its completion. The route, as yet undecided, will be influenced by two considerations: (1) Whether the greater utility to be sought shall be strategic or commercial; and (2) the amount of capital available for construction purposes. Various routes have been suggested: Antung (1) via Fenghuangcheng to Mukden; (2) via Fenghuangcheng to Liaoyang, or some point between Liaoyang and Tashihchiao; (3) via Takushan to Kinchou; and (4) via Tunghuahsien to Kirin. When completed the railway will have an important part in the trade of Antung and in the development of the dependent region. Others will probably sooner or later be undertaken.

TIMBER THE CHIEF PRODUCT EXPORTED.

The three exports which form the basis of the present trade of southeastern Manchuria are timber, silk, and beans. The mineral resources are as yet practically untouched. Tobacco, cotton, indigo, opium, hemp, and medicines are also exported, but in such small quantities as to be insignificant. Timber is the most important product of southeastern Manchuria. The resources are extensive, and with proper methods of reforestation should furnish a timber supply for many years. Timber is largely exported from Antung, small quantities also going from Tatungkou. Most of it is shipped to Chefoo, Tientsin, Dalny, and other Chinese ports, very little being sent abroad. Yalu timber is too poor in quality and high-priced to be imported into Japan in competition with the local product, while Korea supplies its own demand from the eastern bank of the river.

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The average annual output thus far has varied between $2,500,000 to $3,500,000 worth.

The forests which supply the timber are along the upper parts of the Yalu River and its tributary, the Hunchiang, at distances varying from 200 to 400 miles from Antung. The logs are floated from the camps to the market in rafts. The principal kinds of timber felled are pine (Chinese, hunsun), fir (shasun), larch (buanghuasun), walnut (chiumu), cassia (tuanmu), oak (tsomu), and elm (yumu). Pine and fir constitute the larger part of the output. Oak, the only kind of Yalu timber for which there is a present foreign demand, is rather scarce.

The general character of the present product is inferior, most of the logs containing numerous knots, and many of them being extremely fissured. With the improvements in conducting the industry certain to take place in the future, these defects may in a measure be overcome.

PROPOSED CHINO-JAPANESE COMPANY—OTHER ENTERPRISES.

Until a few years ago the timber industry was entirely in the hands of Chinese, who paid a small tax to the Government for the privilege of cutting. The Russians some time before the late war made arrangements to secure certain amounts of timber for construction purposes at Dalny and Port Arthur. Japan in 1905 concluded an agreement with China providing for the future organization of a joint official company to exploit the timber resources of the Yalu. Negotiations have been protracted because of misunderstanding regarding the terms, but it is believed that the company will be organized in time to commence operations on the opening of the Yalu River next spring. The capital will be wholly official and will be furnished by the two governments equally. The headquarters of the company will be at Antung. The cutting and the sale of the timber will, it is said, be conducted in part directly by the company, and, in part, let out by bid or as a monopoly to private firms. The improved methods to be used in the industry are likely to result in a considerable increase in output as well as in a better quality of product.

The timber at present commercially exported from Antung is practically all in log form. The Japanese have erected two sawmills of small capacity, one at Antung and the other at New Wiju, but the output is used almost wholly for local or official purposes. It is probable, however, that sawmills will before long be established both by the company and by private persons, and that the timber will in the near future be exported largely in sawed form, at a correspondingly increased value. The erection of a paper factory is also contemplated. The Yalu seems well-fitted to become a shipbuilding center for small coastwise vessels such as are able to navigate the river. Wood and iron are both available in plentiful quantities. There is a point a short distance below Antung considered suitable for that purpose.

SILK PRODUCTION—BEANS AND BEAN-CAKE.

The product next in importance to timber is wild silk (tussah). The value of the average total annual production is estimated at

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between $2,000,000 and $3,000,000. The product is marketed in the form of thread, cocoons, waste, and cloth. Little cloth, however, is manufactured here, the weaving being done at the Chinese ports to which the thread is exported. The thread is largely shipped to Shanghai, whence it is distributed to other Chinese ports and to some extent to America and Europe. Chefoo is the principal market for the cocoons and waste; while most of the locally woven cloth is bought by the Japanese. The present market values are: Thread, 9.6 to 10.4 cents per "liang" (=1.3 ounces); cocoons, 40 to 41 cents per 1,000; waste, 8 to 16 cents per catty (=1⅓ pounds); and cloth, $2.50 to $5.50 per roll of 20 yards.

The silkworm is reared on the leaves of two species of trees, a scrub oak and the Chingkantzu, which grow wild on all the hillsides of southeastern Manchuria. The chief centers of production are Kuantien, Tunghuahsien, and Hsuiyen; but the industry is carried on to a greater or less extent throughout the whole region. There is still room for a considerable increase in output, and as soon as the remoter parts of the country are brought by rail into closer contact with the markets, there should be a marked expansion of the industry.

The value of the annual production of beans and bean-cake is estimated at between $1,500,000 and $2,500,000. The bean-cake is largely exported to Japan, and the beans to central and southern China. Except by the construction of a railway to Kirin, which would bring the valley of the upper Sungari within the sphere of trade of Antung, there will be little opportunity for an increase of the value of the bean output.

MINERAL RESOURCES—PROBABLE FUTURE DEVELOPMENT.

The latent resources of southeastern Manchuria are minerals, which are believed to be valuable and may in time become the most important output of this region. Gold, either quartz or placer, has been found here and there throughout the whole territory; silver is present principally in the vicinity of Fenghuangcheng, Tsaohokou, and Saimachi; and valuable copper deposits have been discovered near Tunghuahsien and Maoerhshan. Large beds of anthracite coal in the region of Penhsihu, and others of a quality not yet determined at various other points, contain the necessary supply of fuel for the operation of smelters which may in the near future be established in connection with gold, silver, and copper mines. Although a part of the capital for the development of the mineral resources will doubtless come from the inhabitants, the amount thus available would be insufficient for conducting the enterprise on a scale commensurate with the extent of the resources.

Such direct benefits as will be contributed by the development of the mineral and timber resources under the conditions described, together with those which will come from the probable increase in silk and bean production, assure a good future for the trade of southeastern Manchuria.

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COMMERCIAL REVIEW.

TRADE OF THE THREE LEADING PORTS OF THE NANKIN DISTRICT.

Consul James C. McNally, of Nankin, furnishes the following report on the foreign and coastwise trade of the three leading Chinese ports of his district for the third quarter of the years 1906 and 1907, the principal articles being:

Articles.	Nankin.		Chinkiang.		Wuhu.	
	1906.	1907.	1906.	1907.	1906.	1907.
IMPORTS.						
Bags.....pieces..			199,720	136,700	775,940	1,087,250
Copper.....pounds..	380,838	1,567,587			256,610	2,799
Cotton manufactures:						
Cambrics, etc....pieces..	1,993	4,182	7,280	13,200	3,870	6,429
Cloth, all kinds, etc.do....	1,576	1,827	17,851	14,033	1,320	2,370
Drills—						
American .....do....	17,807	8,773	47,220	18,980	8,175	5,615
Dutch.....do....	30	60	720	180	120	1,169
English.....do....	480	1,320	3,855	5,385	3,285	5,140
Flannel .....do....	2,679	2,694			2,840	4,836
Jeans—						
American .....do....	1,000	900	3,406	2,660	1,520	240
English.....do....	7,660	5,350	11,980	14,135	12,355	24,116
Sheetings.....do....		20	17,775	14,230	540	420
Shirtings—						
American .....do....	3,520	6,200	6,655	5,400	6,110	6,975
English.....do....	27,488	42,697	129,763	130,132	31,298	41,691
All other .....do....	150	1,150	1,524	900	25,610	41,074
Yarns .....pounds..	158,093	390,703	3,317,703	5,879,330	1,255,686	1,828,343
Glass, window .....boxes..			1,122	1,458	702	885
Iron and steel, and manufactures of:						
Bars.....pounds..	80,913	99,042	348,980	410,831	42,789	30,259
Nails, and nail rods.do....	40,057	48,788	1,225,827	782,471	125,969	128,236
Sheet and plate ...do....	40,257	37,857	58,820	35,991		
Wire.....do....	3,466	3,199	85,445	94,376	46,255	50,521
Matches.....mille..	53,100	31,650	1,083,700	561,250	185,850	174,100
Needles.....gross..	4,611	5,097	28,032	40,470	15,450	15,300
Oil (kerosene):						
American .....gallons..	245,000	375,000	1,466,000	2,061,525	823,900	1,001,000
Sumatra.....do....			35,000	354,886	69,500	72,000
Opium .....pounds..	33,150	46,241	93,551	103,820	64,660	126,542
Sugar.....do....	2,284,896	1,415,380	39,762,324	31,634,789	8,397,920	11,815,147
Woolen and cotton mixtures, cloth, and stripes...yards..	6,053	1,385	9,004	14,079	18,719	15,837
EXPORTS.						
Beans and pease ...pounds..	103,041	171,157	7,849,637	149,963	23,994	17,462
Feathers.....do....	36,924	7,065				
Flowers .....do....			3,711,739	2,576,156	167,558	79,960
Hemp .....do....	1,462,701	11,351			178,222	69,849
Hides.....do....	7,465	6,265		3,999		
Rice.....do....			4,347,447	143,697	51,906,087	82,179,651
Seeds.....do....	29,326		2,621,079	1,876,464	3,381,821	6,488,244
Silk, and manufactures of, pounds.....	73,460	200,784	159,273	182,888	201,550	318,587
Tea.....pounds..	267	1,466			115,581	115,971

The exports from Chinkiang also included 5,993,835 pounds of groundnuts in the three months of 1906 and 1,491,227 pounds in the corresponding period of 1907; also 2,019,096 and 2,142,664 pounds of oils were exported during the comparative periods. The exports of flour from Wuhu increased from 1,280,480 pounds in the 1906 quarter to 4,192,818 pounds in the three months of 1907.

The number and tonnage of vessels entered and cleared at the three ports during the third quarter of 1907, as compared with the corresponding period of 1906, was as follows: Nankin, 861 vessels of 686,011 tons, against 606 vessels of 543,978 tons; Chinkiang, 1,979 vessels of 935,867 tons, against 1,415 vessels of 855,580 tons; Wuhu, 879 vessels of 799,445 tons, against 672 vessels of 760,619 tons.

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KOREA.

CONTINUED EXCESS OF THE IMPORTS OVER THE EXPORTS.

Consul-General Thomas Sammons, of Seoul, advises that the foreign trade of Korea for the eleven months ending November 30, 1907, aggregated approximately $25,442,723, details of which follow:

Of the total the imports were $18,137,370 and the exports $7,305,353. The total business of Korea for a like period in 1906 was $2,632,307 less in imports and $3,159,043 less in exports. The high price of rice was largely responsible for the increase in the aggregate trade returns for 1907. For many years the balance of trade against Korea has been very high. This unfavorable condition has been overcome in but few instances in recent years.

The exports of gold are not included in the totals for the eleven months of 1907 referred to. Including the gold exports, however, the imports would still be twice the aggregate of the exports.

JAPAN.

COMMERCE OF YOKOHAMA.

VALUE OF TRADE—DISTRIBUTION BY COUNTRIES—MARITIME STATISTICS.

Consul-General Henry B. Miller, of Yokohama, reports on the foreign trade of that important Japanese port as follows:

The total foreign trade of Yokohama for the calendar year 1907 amounted to $187,316,583, against $174,958,876 in 1906 and $167,150,752 in 1905. The value of the imports and exports for the three mentioned years was:

	1905.	1906.	1907.
Imports	$94,858,206	$74,535,174	$85,406,636
Exports	72,792,546	100,423,702	101,909,947

The leading importing countries in their order named were the United Kingdom, United States, Germany, China, British India, and Dutch India, while the principal countries of export with their ranking were the United States, France, the United Kingdom, Italy, China, and British India. The volume of trade between Yokohama and the several countries during 1907 is shown in the following statement:

Countries.	Imports.	Exports.	Countries.	Imports.	Exports.
United States	$15,594,669	$52,659,738	Straits Settlements	$342,981	$565,381
France	1,401,785	19,082,769	Dutch India	3,703,705	245,521
United Kingdom	26,134,045	6,360,174	Hongkong	139,619	1,134,960
Germany	11,249,566	2,111,873	Canada, etc	387,027	952,751
Belgium	3,084,340	409,219	Australia	3,187,852	1,211,681
Italy	242,386	6,122,259	French Indo-China	1,747,085	38,739
Switzerland	798,420	29,701	Other Countries	4,964,937	4,330,249
Austria-Hungary	202,196	45,749			
China	6,340,941	3,738,673	Total	85,406,636	101,909,947
British India	5,920,132	2,870,510			

PRINCIPAL IMPORTS AND EXPORTS.

Of the articles of import into Yokohama in 1907, raw cotton ranked first, with a value of $7,196,049, against $4,581,588 in 1906

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and $7,168,886 in 1905. The next import of importance was raw wool valued at $5,287,615, as against $3,183,024 in 1906 and $3,062,762 in 1905, which was followed by rice worth $5,539,734, $6,303,727, and $11,912,939 for the three years, respectively. The other leading articles of import were flour, sugar, kerosene oil, manufactures of iron and steel, and cotton manufactures. The chief article of export was tea, the value of which was $77,477,111 in 1907, $71,530,273 in 1906, and $55,453,420 in 1905. The following statement shows the value of the principal articles of imports into and exports from Yokohama during the three mentioned years:

Articles.	1905.	1906.	1907.
IMPORTS.			
Cotton, and manufactures of:			
Raw	$7,168,886	$4,581,588	$7,196,049
Prints	80,438	169,454	175,279
Satins	305,016	251,033	332,804
Shirtings	2,032,745	2,045,518	1,904,822
Velvets	229,968	185,259	259,434
Yarn	605,322	1,740,855	715,974
Fertilizers	911,054	679,723	1,208,094
Flour	2,384,626	1,819,166	1,352,080
Glass, window	322,339	586,425	391,640
Iron and steel, and manufactures of:			
Bar and rod	1,698,125	1,157,600	1,807,124
Galvanized	829,265	917,109	1,637,829
Pig and ingot	1,001,438	456,671	306,676
Pipes and tubes	475,991	502,521	718,223
Plate and sheet	1,180,175	831,597	1,755,648
Rails	272,800	430,960	816,983
Nails	713,706	546,318	857,846
Leather, sole	3,260,614	439,153	867,170
Oil, kerosene	1,916,738	1,640,440	2,096,557
Rice	11,912,939	6,303,727	5,539,734
Sugar	2,608,239	4,886,008	3,790,674
Wool, and manufactures of:			
Raw	3,062,762	3,183,024	5,287,615
Cloth, etc	4,947,365	4,136,988	1,813,947
Yarn	2,008,047	399,304	1,642,426
EXPORTS.			
Copper, refined	1,558,227	3,711,832	3,982,728
Lacquered ware	429,270	565,873	526,697
Oil, fish	297,878	455,581	947,171
Porcelain, etc	316,739	400,378	376,246
Silk, and manufactures of:			
Raw	35,970,193	49,720,725	58,052,995
Handkerchiefs	2,414,288	2,717,543	2,569,479
Tissues	14,281,387	16,552,755	14,099,135
Waste	2,787,544	2,539,250	2,775,502
Tea	3,271,540	2,726,602	2,855,099

The number of vessels entered at the port of Yokohama during 1907 was 1,195 of 3,489,822 tons, as compared with 1,062 vessels of 3,276,949 tons in 1906, and 924 vessels of 2,847,031 tons in 1905. The vessels cleared in 1907 numbered 1,110 of 3,303,096 tons; in 1906, 1,052 of 3,240,973 tons, and in 1905, 894 of 2,760,303 tons.

NEW PORT OPENED.

FOREIGN TRADE MAY NOW BE CARRIED ON WITH OMUTA.

Consul George H. Scidmore transmits an article from the Nagasaki Press relative to the opening of the Japanese port of Omuta, in the Gulf of Shimabara, Kyushu, in April, when the new harbor will be completed, from which the following extracts are taken:

The new harbor is divided into two sections—inner and outer—with areas of 40,000 tsubo and 150,000 tsubo (33½ and 125 acres), respectively. A break-

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water, 12,000 feet in length, will inclose the outer harbor, with the exception of a gap of 450 feet to allow vessels to pass. The two sections will be divided by locks, 66 feet in breadth, by which means the inner harbor will be kept free from the great tide fall, 18 feet, a depth of 28 feet being the minimum maintained.

Three steamers of 10,000 tons each can be loaded simultaneously in the inner harbor if necessary, 7,000 tons of coal being shipped daily.

The works are being carried out by the owners of the famous Miike collieries, for the purpose of saving the cost of transporting the coal to Kuchinotsu for shipment. At present the cost to the company of shipping the coal is 1 yen (50 cents) per ton; as the output for last year is estimated at 1,400,000 tons it represents a considerable outlay. The company expects to place the coal on board at Omuta for about 50 sen (25 cents) per ton, so that the saving effected will probably be well over half a million yen ($250,000) per annum. The new harbor works were estimated to cost 3,000,000 yen ($1,494,000); it is therefore expected that the outlay will be saved in about five years.

The dispatch from Tokyo states that other Kyushu ports will be greatly affected by the opening of the new harbor. Kuchinotsu as a coaling port will practically cease to exist, but we can not understand how other ports in the island will lose trade, as there is no reason to believe that Omuta will become a port for general trade.

STRAITS SETTLEMENTS.

AN IMPORTANT MARKET FOR AMERICAN MANUFACTURERS TO DEVELOP.

Of the world's greatest seaports Consul-General Thornwell Haynes states that Singapore, in tonnage movement, exclusive of warships, transports, native craft, yachts, and vessels under 50 tons, ranks ninth, the total entering and clearing in 1907 being nearly 14,000,000 tons. Other favorable comparisons and opportunities for American goods are also revealed as follows by Mr. Haynes:

Hongkong ranks higher as a commercial port, but in cargo value falls below Singapore's $300,000,000. With the exception of Hongkong, Singapore is preeminently the transfer station of eastern trade, nineteen-twentieths of the value of her imports and exports being transshipments, the one-twentieth consisting of home-raised cocoanuts and pineapples. Only one six-hundredth of her tonnage is local. Within the last ten years her total trade value has doubled. In 1896 there entered five vessels with 7,408 tons from America, and 44 with 77,727 tons cleared for there; in 1906 the figures were, respectively, 43 vessels with 131,593 and 58 with 201,715 tons.

ARTICLES IN DEMAND—PRESENT AMERICAN TRADE.

Few places possess the trading facilities of Singapore. Here is the trade clearing-house of the East with free labor, military protection, superior banking facilities, free trade, and a magnificent harbor, which will soon be improved at a cost of $5,000,000. Here are people who want sewing machines, typewriters, cotton goods, drugs, chemicals, motor cars and boats, tobacco, cigars, lamps, musical instruments, phonographs, machinery, electrical appliances, food, oils, etc., and English and Germans are here busy supplying them, while the American is at home posting letters and circulars.

However, typewriters made in the United States are being sold by English agents and one American company's sewing machine is being energetically pushed in the Straits Settlements, the Federated Malay States, Siam, and Java. One-third of the annual total of $700,000 worth of petroleum entering Singapore comes from the

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United States. Sumatra, being near, furnishes considerably over one-half of the whole. Of the 21,000 tons of flour, nearly one-half comes from Hongkong and less than one-fortieth direct from the United States, the figures for 1906 being, respectively, 21,057 and 514½ tons. Approximately two-thirds, however, of that entering from Hongkong is American flour.

INDIRECT REPRESENTATION.

Apart from typewriters, sewing machines, petroleum, and flour, what are American merchants doing toward the sale of articles wanted in a tropical climate? What they are not doing in this colony that sells to the United States $16 worth of goods to every dollar's worth it buys is shown by the fact that of the 50 different lines of American business represented in Singapore 36 are in English hands, the remaining 14 being attended to by only 5 Americans. Ten makes of American typewriters are on the market, 9 of them sold by English. The only American bank has an English manager, as is true of the same bank in Hongkong and Shanghai, a condition due, it is said, to the Englishman's superior training in exchange. American watches, scales, vehicles, beer, drugs, medicines, and automobiles are sold exclusively by English.

During 1907 over 300 trade letters were received at this consulate. Every mail brings American advertising matter which is given as wide publicity as possible. The regular issues of twenty-four trade papers are received and kept on the reading table within reach for easy reference, and manufacturers are assured that all printed matter or other forwarded will be kept where it will prove of most value.

FEDERATED MALAY STATES.

AREA AND POPULATION—GOVERNMENT AND GEOGRAPHIC CONDITIONS.

Consul-General Haynes also sends the following information concerning the Federated Malay States and the prospects there of mineral and agricultural development:

The Federated Malay States, comprising Perak, Selangor, Negri Sembilan, and Pahang, have an estimated area of 26,380 square miles and a population of about 900,000. Pahang is the largest of these states, covering nearly half the combined area, and Perak is the richest and most important. The administration is subject to the British secretary of state for the colonies, under whom the governor of the Straits Settlements holds the office of high commissioner of the Federated Malay States. The principal civil officer in the states is the resident-general, who is assisted by a staff supervising the principal departments.

The land slopes to the coasts from a central mountain range with heights of 3,000 to 7,000 feet, and is everywhere covered with a dense tropical forest of large timber trees, most of which are over 100 feet high. From this watershed flow innumerable streams, some of which are navigable for light-draft steamers 50 miles from the sea.

MINERAL AND AGRICULTURAL PRODUCTS.

Among the natural resources of the states are minerals, such as tin, gold, lead, iron, silver, copper, zinc, etc. Tin is by far the most important, furnishing about 60 per cent of the world's production. Only

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alluvial surface deposits have so far been worked, and these only in a crude Chinese fashion. The last year for which statistics are available showed a falling off in the quantity of tin produced, due to the fact that the different mines were not equipped with the necessary machinery to mine the lower grades of ore successfully. This condition has been in a large measure remedied by enterprising mine owners, and as a result there will probably be additional development of new deposits and a greatly increased production. A small quantity of gold is mined. There are other minerals as yet untouched which are doubtless of great value.

Forest products comprise gutta-percha, rubber, rattans of many varieties, including the Malacca cane, vegetable oils, resins, and the ataps so extensively used for thatching, gambier, tapioca, sago, rice, and spices, principally pepper. Among the fruits are the mangosteen, banana, apple, lime, durian, duku, chiku, cocoanut, pineapple, guava, orange, soursop, mango, papaya, langsat, and many others. The equable climate is especially favorable for agriculture, in that it causes a constant, active growth. As a result all crops, annual or perennial, show greater progress than the same plants during the same time in countries like Ceylon and South India, where prolonged periods of extremely small or absolute lack of rainfall check growth. The disadvantage of the equable climate is that there is no "close time" for insects or fungous pests. Droughts at regular intervals would hinder parasitic fungi.

RUBBER AND COCOANUT PRODUCTION—FINANCIAL PROSPERITY.

Rubber is the chief agricultural product. At the beginning of the past year there were 242 estates, with 10,745,000 trees, an increase of 4,000,000 over the preceding year, and a total acreage of 85,579, an increase of 45,000. The output of dry rubber was 130 tons in 1905 and 385 tons in 1906. At present there are employed regularly in estate work 70,000 coolies, of whom 31,000 are Tamils, 4,000 Javanese, 1,500 Malays, and 3,400 Chinese.

The cultivation of the cocoanut ranks next in importance. The area under cultivation at present is over 105,000 acres, an increase of 5 per cent over that of a year ago. More than one-half this area is bearing, and the whole is said by the director of agriculture of the Federated Malay States to be worth about $11,200,000. At an average of 40 nuts per tree, the yield, if converted into copra, would amount to over 50,000 tons, with a large and valuable stock of fiber for the manufacturing of coir matting, rope, etc.

Recent experiments have been made with the propagation of camphor by means of cuttings. The first trial of some thousands of trees was not successful. As the camphor plant does not fruit until some thirty or forty years old, the experimenters are obtaining more seed from Japan. Some plantings of cuttings only a few feet above the sea level have attained in two years a height of 12 to 14 feet.

All official reports point to increased activity in every line of business, and the proposed public improvements, providing particularly for better communication and transportation facilities, must when completed add greatly to the wealth-producing capacity of the country. Much progress has been made in the solution of transportation problems. The finances of the States are in a prosperous condition; reports show a surplus of over $2,800,000.

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COCHIN-CHINA.

GREAT INCREASE IN RICE SHIPMENTS—AMERICAN FLOUR SALES.

Vice-Consul Louis R. Gage, writing from Saigon concerning the trade of French Cochin-China, sums up the situation as follows:

The amount of wealth in Cochin-China can be estimated every year by its rice exports. In 1906 the shipments of rice amounted to 548,000 tons, of which 149,649 tons went to Europe and the remainder to other countries. The shipments in 1905 aggregated 396,445 tons, 97,437 tons going to Europe and 299,008 tons to other countries. These shipments did not include rice meal and broken rice. The hulling of rice is practically monopolized by the Chinese, who own and operate all mills, with the exception of two, in Saigon.

The imports of American petroleum in 1906 amounted to 110,000 cases, against 230,000 cases in 1905. Petroleum from the Dutch Indies, although being of a lower quality, is also sold in large quantities because of its cheapness. Flour continues to form one of the principal articles of import from the United States, and is either shipped direct or through Hongkong. As a result of the boycott Australian firms have been given the preference in the flour trade and are now competing keenly with American importers. French flour, which is more expensive, is bought chiefly by the military authorities, and the bakeries are using it on a larger scale than ever before.

IMPORTS BY ARTICLES—AMERICAN TRADE.

The total imports of merchandise for domestic consumption into Cochin-China during the calendar year 1906 were valued at $19,304,685. The following statement shows the imports by articles:

Articles.	Value.	Articles.	Value.
Animal products:		Manufactures—Cont'd.	
Live animals	$33,444	Prepared dyes	$284,940
Animal products, etc	356,886	Colors	176,560
Fisheries	100,815	Various compounds	419,824
Animal substances, raw	73,326	Earthenware, etc	205,507
Vegetable products:		Glass and crystal	107,831
Farinaceous foods	840,785	Yarns	643,863
Fruits and seeds	801,136	Tissues	4,563,852
Colonial produce	1,231,480	Paper, and manufactures of	828,469
Vegetable oils and juices	903,614	Hides, skins, etc., prepared	157,612
Medicinal substances	161,221	Manufactures of metals	1,200,298
Woods	115,329	Arms, powder, etc	379,572
Fibers, stems, and fruits for manufacturing purposes	120,991	Furniture	32,449
Various products, etc	380,825	Articles of wood	64,112
Beverages	934,095	Musical instruments	19,178
Mineral substances:		Manufactures of esparto, etc	102,090
Marble, stone, earths, etc	1,137,342	Manufactures of various metals	931,355
Metals	1,825,126	All other articles	11,575
Manufactures:		Total	19,304,685
Chemical products	159,183		

The value of the imports direct from the United States in 1906 was $52,379, consisting of the following articles: Tissues worth $2,104; marble, stone, earths and combustible minerals, etc., $46,192; animal products and wastes, $3,585, and all other articles, $498. There were no exports direct to the United States in 1906, but the shipments of rice to the Philippine Islands during the year amounted to $3,000,000 gold.

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The number of vessels entered at Saigon during 1906 was 292, which included 60 belonging to Chinese shipowners flying the British flag, which call from Hongkong loaded with general cargo. The number of vessels cleared, after deducting the 60 Chinese steamers, was 228, all of which were loaded with rice.

FRENCH INDIA.

INCREASE IN IMPORTS AND DECREASE IN EXPORTS.

Consular Clerk Milton B. Kirk, of the Paris consulate-general, furnishes the following statistics concerning the foreign trade of the French settlements in India for the year 1906: Imports, $1,274,736; exports, $5,167,600. Compared with 1905, this shows an increase of $47,988 in the imports, and a decrease of about $80,000 in the exports. Of the imports $318,855 were from France, $5,877 from French colonies, and the remainder, $954,977, from foreign countries. Of the exports, $748,605 went to France, $646,101 to French colonies, and the remainder, $3,776,888, to foreign countries. The French settlements in India consist of Pondichery, the principal port of commerce, Oulgart, Villenour, Bahour, Karikal, Grand Aldée, Nedounkadore, Chandernagar, Mahé, and Yanaon, with a total population estimated at 275,500, of which a little over 1,100 are Europeans.

KONGO FREE STATE.

A SUBSTANTIAL INCREASE NOTED IN BOTH IMPORTS AND EXPORTS.

Consul-General James A. Smith, of Boma, furnishes the following report on the foreign trade of the Kongo Free State:

The total trade of the Kongo Free State for the year 1906, the figures being the latest available, amounted to $20,551,200, an increase over 1905 of $2,326,745. The exports were valued at $14,818,796, which included articles in transit worth $3,571,176, while the imports amounted to $5,732,404, the goods in transit being valued at $1,587,237. The combined value of the imports for consumption and exports of Kongo products, known as special commerce, was $15,392,787, of which $4,145,167 were imports and $11,247,620 exports. This was a gain of $1,012,406 in exports and $270,649 in imports over 1905.

The exports of copal, palm oil, cocoa, and rice showed increases, while groundnuts, coffee, ivory, and palm nuts decreased. The principal export, rubber, shows a loss in quantity but a gain in value. In 1905 the total shipments of rubber amounted to 10,715,334 pounds, the average price per 2.2 pounds being $1.74. In 1906 the average price was $1.93 per 2.2 pounds. Ivory brought an average of $2.19 a pound. The largest imports are tissues, food products (largely canned), liquors and beer, material and accessories for river steamer construction, clothing, metals, coal, glassware, arms and ammunition, machinery and hardware.

PRINCIPAL ARTICLES OF IMPORT.

By far the larger part of the tissues imported consist of cheap unbleached cotton, cotton prints, and a blue indigo cotton drill, mostly

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of English and Belgian manufacture, and used extensively for barter with the natives, with whom it is much in favor because of its durability. The uniform worn by the native soldiers is also of this material. Imports of food products are principally canned meats, fish, vegetables, butter and cheese, preserved fruits and conserves for the white population. Dried fish for rationing the State's soldiers and native workmen is imported largely from the west coast of the Portuguese colony of Angola. Under the heading "metals" are included steel rails, bars and plates, copper wire, bar iron, rails, and galvanized corrugated iron largely used in building work by the State and concessionary companies.

The principal articles of import for consumption into the Kongo Free State during the calendar year 1906 were as follows:

Articles.	Value.	Articles.	Value.
Arms and ammunition	$177,636	Lumber and timber	$36,813
Candles	7,352	Machinery	206,300
Coal	62,706	Metals	212,338
Colors	15,923	Oils	35,245
Crockery	12,721	Pharmaceutical products	59,129
Clothing	251,399	Soap	18,407
Construction material	36,279	Stationery	39,433
Chemical products	9,907	Scientific instruments	18,752
Drugs	10,121	Steamers, etc., and materials	277,860
Food products	781,954	Tobacco	38,734
Furniture	28,058	Tissues	1,145,167
Glassware	74,584	All other articles	67,975
Hardware	155,495		
Haberdashery	27,201	Total	4,145,167
Liquors, including beer	335,676		

DOMESTIC EXPORTS—SPECIAL COMMERCE BY COUNTRIES.

The largest items of domestic export in 1906 were: Copal, valued at $209,582; cocoa, $108,736; ivory, $859,848; palm nuts, $283,453; rubber, $9,358,436, and palm oil, $230,977. The value of the special commerce, by countries, is shown in the following table:

Countries.	Special commerce.		Countries.	Special commerce.	
	Imports.	Exports.		Imports.	Exports.
United States	$11,384		British possessions, East Coast	$18,411	$59,617
Belgium	2,950,061	$10,480,811	Egypt	4,158	28,501
United Kingdom	528,959	162,464	Denmark	38,975	
France	156,246	1,930	Portugal	32,654	
Germany	154,537	29,067	Austria-Hungary	15,246	
Netherlands	121,443	88,396			
Portuguese possessions	82,019	380,024			

Under present conditions the outlook for any large extension of the market for American goods is not a bright one. There are many articles in which American manufacturers should be able, under ordinary conditions, to secure a reasonable portion of the trade, notably in cotton goods, canned meats and vegetables, preserved fruits, arms and ammunition, iron and steel manufactures, machinery, hardware, etc., but ordinary conditions do not prevail, and at present I see but little opportunity for an increase in American exports to this country. There are no direct exports to the United States, and the imports therefrom in 1906 amounted to only $11,384, consisting almost entirely of canned goods and machinery.

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DAHOMEY.

THE IMPORTS AND EXPORTS OF AN AFRICAN COLONY OF FRANCE.

The commercial movement of the French African colony of Dahomey is reported on as follows by Consular Clerk Milton B. Kirk, of Paris:

The foreign trade in the year 1906 amounted to $3,670,979, an increase of $126,211 over the year 1905. The imports were $2,029,243, a loss of $42,134 over the preceding year, and the exports were $1,641,736, an increase of $168,345 over 1905. France furnished 35.8 per cent of the imports and took 33.6 per cent of the exports. The direct imports from France amounted to $14,294 of animal products, $117,517 of vegetable goods, $66,199 of mineral products, and $528,306 of manufactured articles.

The direct imports from the United States consisted of animal products worth $56, vegetable products $4,854, mineral products $7,929, and manufactured products $3,059. Of these same classifications England furnished $3,014, $53,285, $4,473 and $202,696, respectively, and Germany $3,454, $203,679, $31,561, and $247,732, respectively.

The principal import was textiles, mainly supplied by Germany, which shipped $256,118 worth; England, $163,436; Lagos, $142,134, and France, $52,214.

The principal crude exports were grains and fruits, of which Lagos took about $500,000 worth and Germany about $250,000 worth. Nearly all the vegetable oils were shipped to France.

AUSTRALIA.

MELBOURNE CLEARING-HOUSE RETURNS—CHECKING FOREIGN VALUES.

Consul-General John P. Bray reports that the clearing-house returns of the city of Melbourne, Australia, for the year 1907 totaled $1,151,383,629, or an increase of $80,544,098 over 1906. The following table shows the clearances in Melbourne and Sydney, the two large cities in Australia, during the past five years:

	1903.	1904.	1905.	1906.	1907.
Melbourne	$811,213,419	$847,530,113	$913,113,195	$1,070,839,531	$1,151,383,629
Sydney	890,648,682	865,250,724	923,789,688	1,074,817,681	1,139,287,423

The government of Australia is endeavoring to make arrangements with the British Government by which, in return for a fee, the former government may utilize the services of the commercial attachés which it is proposed to appoint to the principal British consulates throughout the world, for the purpose of making special investigations as to foreign value of goods imported into Australia.

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TEXTILES.

COTTON AND PRODUCTS.

MEXICO.

CULTIVATION, SEED-OIL PRODUCTS, MANUFACTURE AND IMPORTS.

Special Agent Arthur B. Butman, writing from Mexico City, describes the various branches of the cotton-textile industry in the Mexican Republic, including the growing of the fiber and its conversion into different marketable products. His report follows:

The principal cotton-growing section of Mexico is comprised in what is known as the "Laguna district," which includes the southern portion of the States of Chihuahua, Coahuila, Nuevo Leon, Tamaulipas, Durango, Zacatecas, and San Luis Potosi. In this district is produced probably 85 per cent of the cotton grown in the Republic.

Active efforts have been made to increase the acreage under cultivation, but such efforts have not resulted successfully. According to authorities familiar with the cotton-growing industry in Mexico, this is accounted for by various and somewhat conflicting reasons. It is claimed that the Laguna district is at present turning out about all the cotton that it can produce. Again it is claimed that the land is held in large tracts, and that the small cotton grower can not secure small areas for planting, while the larger growers do not enter into it to any great extent, except in the State of Coahuila. The cotton district is an irrigation country, and it is stated that, at the present time, all Government water concessions are taken up, which is another obstacle to would-be growers.

There are other portions of the Republic well suited to cotton cultivation, such as the States of Chiapas, Vera Cruz, Puebla, and Morelos, and the coast lands of the States of Oaxaca and Guerrero.

IMPORTATION AND CULTIVATION OF THE FIBER.

Mexico does not produce sufficient cotton for domestic consumption. In fact, it may be approximately estimated that the production of the staple in the Republic yields about one-half the amount required for use in her industries. Mexico imports annually a small quantity of Egyptian cotton for use in mercerized weaves. The exports of cotton from the United States to Mexico during the fiscal years 1905, 1906, and 1907 were valued at $3,768,126, $1,620,443, and $36,413, respectively. The noticeable falling off in these exports was largely due to the unusually favorable yields of the domestic-grown staple.

The experimental growth of Caravonica cotton, a staple of unusual length and quality, especially adapted to tropical localities, has recently been successfully undertaken in the State of Veracruz.

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It is impossible at the present time to secure accurate official statistics of the acreage now under cotton cultivation in Mexico. The best cotton authorities, however, estimate the area for 1907 planted in cotton to have been 250,000 acres. The amount of cotton produced in the fiscal year 1903 was 80,779,901 pounds, valued at $3,939,989, United States currency, which is that used throughout this report, and in 1904, 121,062,106 pounds, valued at $7,858,521. There was a shortage in the yield for 1907, which is not expected to exceed 70,000 bales.

Cotton is planted in Mexico in March, the season of growth extends from March until June, and picking takes place from June until September. No fertilizers are used in the growing of the plant, although the consideration of their adoption is receiving the attention of the growers.

The fiber of the Mexican cotton is of good length and strength, thinner, however, than that of American cotton, less silky, and not so clean. The plant suffers from many pests, among which is the boll weevil, which is said to have been known in Mexico fifty years before it was found in Texas, and is supposed to have migrated thither. The "conchuela" is perhaps the most common pest, and of diseases common to the cotton plant, viruela, or cotton smallpox, is prevalent, and annually destroys large quantities of cotton. The Mexican Government maintains no experimental stations for cotton growth, but information on the best methods of parasite extermination is freely given by the Government to cotton growers.

BALING METHODS.

Mexican cotton is baled according to improved methods. The presses used are heavy, and the cotton is baled under pressure of from 3,000 to 4,000 pounds. There are no central presses in Mexico to receive the cotton from various gins. Each plantation has its own gin and press. Cotton is baled on the premises. Four or five laborers (peons) are employed to a baling press. Square bales are used, generally weighing about 500 pounds, and five 1-inch ties are used to the bale. The ties used are the standard arrow ties, 1 inch in width and 11½ feet long, and weigh 45 pounds to the bundle of 30 ties. They are manufactured principally in Monterey, and cost $1.35 per bundle. Buckles are used in baling, as in the United States. Gunnies are made of ixtle, the native Mexican fiber, and are manufactured in the cotton-raising vicinity.

Cotton is bought and sold by net weight in Mexico, and on the invoice a discount is made on the gross weight for the tare.

COTTON MANUFACTURING.

According to the latest complete annual industrial statistics, the cotton industry of Mexico in the fiscal year 1905 employed 30,162 persons, operating 678,058 spindles and 22,021 looms, and consumed 68,850,195 pounds of cotton in 128 factories during the year. I am informed that the increase in cotton manufacturing plants in Mexico since that period has been limited. Some few factories may have resumed operations, but others have been closed, so that the factories in operation to-day are practically the same, as regards numbers, as in 1905. There has been little increase in the production of cotton goods in the past few years, consequently the number of employees

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at the various mills throughout the Republic at present is only slightly larger than for 1905.

The larger percentage of factories in Mexico are employed in the manufacture of cotton yarn and in weaving. Cotton colored tissues are manufactured in 17 factories, and there is at least 1 cotton underwear factory. The estimated sales for 1905 amounted to $25,404,784.

By far the larger number of factories are located in the central States, Puebla leading with 29 mills, in which are operated 113,000 spindles. The State of Vera Cruz contains 11 mills, and the most important cotton manufacturing company is found at Orizaba, which is said to own about one-fifth of the total cotton manufacturing outfit of the Republic. The mills in Orizaba are modern, up-to-date plants, complete in every detail—one of them is said to be one of the largest in the world—and of a size which will compare favorably with the cotton establishments in the United States. A good proportion of the raw cotton produced in Mexico is consumed in the mills at Orizaba.

COTTON-SEED PRODUCTS.

Cotton-seed products in Mexico are becoming more and more a commercial proposition. Many manufactories exist in various sections of the republic where the cotton seed is used; the chief products of which are soap, glycerin, cotton-seed oil, cotton-seed meal, and cotton-seed meal cakes. The cotton-seed meal is used, as in other countries, as a food for fattening stock for market.

At Gomez Palacio, in the State of Durango, is situated the largest factory using cotton seed in Mexico; soap, glycerin, and cotton-seed oil being here manufactured in large quantities. Such factories, of more or less importance, are found in many sections of Mexico, and the rapidly growing industry is fast becoming a prominent one.

The following statement shows the exports from the United States to Mexico of cotton-seed products during the fiscal years 1902–1907, and the exports of cotton-seed meal and cake from Mexico during 1902–1906:

Year.	Exports from United States to Mexico.		Exports of cotton-seed meal and cake from Mexico.	Year.	Exports from United States to Mexico.		Exports of cotton-seed meal and cake from Mexico.
	Oil.	Cake and meal.			Oil.	Cake and meal.	
			Metric tons.				*Metric tons.*
1902	$1,069,741	$967	8,235	1905	$892,751	$181	13,814
1903	1,068,335	247	8,738	1906	822,161	665	16,210
1904	1,176,996	2,858	9,871	1907	1,008,381		

LABOR, WAGES, AND WORKING DAY.

The wages paid in the cotton manufacturing industry in the various sections of Mexico differ considerably, averaging much higher in the northern States than in those States situated in the central and southern sections of the country. On the whole, however, the averages mentioned will be found approximately correct. About an equal percentage of male and female workers are employed in the cotton factories. Spinning operatives are paid by the piece, the earning capacity of each worker depending naturally upon their skill and speed. Monthly wages: Engineers, $37.50 to $75; stokers, $25 to $50; machinists, $37.50 to $50; storeroom employees, $50. Daily

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wages: Reelers, carders, stretchers, and flyers, of both sexes, from 25 to 50 cents. One weaver usually attends to four looms, although the number of looms operated, in many instances, depends upon general labor conditions as well as on the proficiency of the weaver.

Many children are employed in the factories, it being estimated that child labor in the cotton mills of Mexico will average about 25 per cent of the total number of operatives employed. The children, both boys and girls, begin work at the age of 9 years, and are employed usually in the reeling department. They are paid, as a rule, from 20 to 25 cents a day, when they first begin work, and, as proficiency increases, this wage is advanced to 30 to 37½ cents a day.

The working day varies in the different sections of the country. In many of the States, particularly in those States where labor unions have obtained some growth, the hours constituting a working day are fixed at ten. In other sections, farther removed from business centers, and where there are more laborers and less work than in the larger cities, from twelve to fourteen hours constitute a working day. It should, however, be stated that in Mexico the midday rest, which is allowed to practically all employees of manufacturing and other enterprises, is two hours, which materially reduces the seemingly long hours of labor prevailing.

MODERN MILLS—OUTPUT OF FACTORIES.

The greater number of the cotton mills of Mexico are of modern construction and patterned largely after the mills of the United States and Continental Europe. As regards equipment, not only the mills of Orizaba, previously mentioned, but practically all the cotton mills in Mexico, are now equipped with modern machinery. Many of the mills have recently abandoned their old machinery for that of later and more modern design, so that it may be safely stated that practically all the cotton mills in the Republic are modern in equipment.

The United States furnishes about one-third of the machinery used in Mexico in the manufacture of cotton goods, the remaining two-thirds, as now employed, coming from England and Germany. The bleaching, dyeing, and printing establishments are usually of modern construction and equipped with all up-to-date appliances. Motive power is supplied by steam, water, and electricity. Steam is very largely used, but owing to the extension of electric power in nearly every portion of the country, electricity is coming more and more into general use and is gradually supplanting steam and water as a motive power for cotton manufacturing.

The quality of the Mexican cotton goods output is constantly improving. Not only the cheaper grades of cotton prints but many of the finer classes are now manufactured. The output includes cotton sheetings (bleached and unbleached), tickings, linings, drills, mezclillo (mixed gray cloth), shirtings, printed percales, Marseille quilts, cotton napkins, tablecloths, handkerchiefs, and cloths of mixed woolen and cotton. Knitted garments and fleece-lined underwear are manufactured, although this industry is in its infancy.

Unbleached sheetings are manufactured 1½ meters (meter=39.37 inches) in width and 28 to 30 meters to the bolt; domestic unbleached, 60, 65, 70, 75, and 80 centimeters (centimeter=0.3937 inch) in width, 25 to 30 meters to the bolt; bleached sheetings 1½, 1¾, and 2 meters in

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width, 45 to 50 meters to the bolt; domestic bleached, 60, 65, 70, 75, and 80 centimeters in width, 42 to 50 meters to the bolt. Drills are woven 1 meter 60 centimeters wide, and in lengths of 45 meters; percales, 77 centimeters wide, in lengths of 35 meters.

The exports of cotton manufactures from the United States to Mexico during the last three fiscal years were as follows:

Description.	1905.	1906.	1907.
Piece goods	$270,143	$265,064	$267,695
Wearing apparel	278,944	285,406	324,395
Total	549,087	550,470	592,090

The consumption of British cotton goods in Mexico exceeds that of all other foreign countries. During 1906 the United Kingdom exported to Mexico the following: Piece goods—gray $59,863, bleached $809,879, printed $325,028, dyed or of dyed yarn $628,692, total piece goods $1,823,462; other than piece goods $1,507,604; yarn, $68,391; grand total $3,399,457.

CHINA.

EFFORTS TO EXTEND COTTON GROWING—UTILIZATION OF THE SEED.

In forwarding a report on the cotton-growing industry of China by Deputy Consul-General W. Roderick Dorsey, of Shanghai, Consul-General Charles Denby makes the following comments:

The determination of the Chinese to improve the products of their cotton fields, in which determination they are encouraged by the demand for raw cotton for manufacturing industries in Japan, must, if intelligently persisted in, affect the export of raw cotton from America to China and Japan. It is evident to the observant traveler that not only could the area devoted to the growth of cotton throughout China be greatly increased, but, with intelligent effort in the selection of seed and preparation of the soil, it could be made tc produce a better crop of fiber, more suitable to manufacture by modern machinery.

This tendency on the part of modern China to produce at home the commodities for which the Empire has heretofore relied largely upon foreign imports is manifest not only in cotton, but is marked in the increasing growth of wheat and the manufacture of flour, as well as in the production of iron and steel.

Mr. Dorsey's remarks as to the unsuitability of American machines for the removal of the small Chinese cotton seed and the consequent replacing thereof by English machines is commended to the attention of the American manufacturer. The increased production of cotton in China will necessarily lead to a greatly increased demand for cotton gins of the small hand-power variety, millions of which are now in use throughout this country and which are as a rule supplied from Japan. The whir of these small ginning mills is a familiar sound in every village in the immense cotton-growing district of central China.

Samples of ordinary Chinese cotton fiber and of that recently grown from American seed, together with some Chinese cotton seed

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itself, are forwarded herewith. [Samples of these may be secured by business firms from the Bureau of Manufactures.] Mr. Dorsey's report follows:

EXTENT OF CULTIVATION AND YIELD.

Among the pursuits and industries of China the cultivation and manufacture of cotton is one of the most important. The heavy demand made upon the local crops by the mills of Japan and the many thousand spindles whirring busily in the Shanghai mills to supply an ever-increasing demand for native yarns, etc., demonstrates to the grower that a great acreage must each year be devoted to the production of this staple.

Actual figures as to the size and value of the yield, as well as the area now under cultivation, would be of value and great interest, but no reliable statistics on these points can be secured. It is conceded, however, that the area devoted to its growth and the value of the annual crop are exceeded only by that of silk and tea, cotton thus taking third place in the scale of agricultural products.

Figures as to the yield can only be estimated. The annual output of the mills is placed at 180,000,000 pounds a year. To this can be added with certainty the 110,000,000 pounds (including cotton waste) exported to foreign countries. Information as to the quantity of cotton used by the natives for padding clothing, bedding, etc., never reaches a statistician. Allowing only three-fourths of a pound of cotton to each of 400,000,000 inhabitants, 300,000,000 pounds more are accounted for, which, added to the preceding figures, gives a possible total production of 590,000,000 pounds per annum, the value of which at the average price of export cotton during 1906 would be $97,980,000 United States currency.

The country adjacent to Shanghai is the principal cotton-producing district in China, both for bulk and grade. Hankow and Ningpo are also important centers, but the quality is inferior to and the staple shorter than that grown in the Shanghai district.

STATISTICS OF EXPORTATION—USE IN LOCAL MILLS.

The following table gives the quantity, expressed in pounds, of cotton that passed through these ports during the past four years:

Port.	1903.	1904.	1905.	1906.
Shanghai	63,000,000	107,229,000	79,000,000	82,700,000
Hankau	44,300,000	53,300,000	33,800,000	19,200,000
Ningpo	15,500,000	16,800,000	11,900,000	14,000,000

Cotton ranks fourth in the list of products exported to foreign countries. The total exports for the last four statistical years is as follows: In 1903, 101,700,000 pounds; 1904, 182,000,000 pounds; 1905, 108,900,000 pounds; and in 1906, 109,500,000 pounds. Of this Japan took about 90 per cent, Germany 3 per cent, Great Britain 2 per cent, Hongkong 2 per cent, Italy 1½ per cent, the remainder being distributed between the continent of Europe, Russia, and the Orient, only a very small consignment, evidently samples, going to the United States. [A Boston commission firm writes to the Bureau of Manufactures that it has been making considerable importations of Chinese cotton from Liverpool.] In this connection it is interesting to

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note that an effort will be made shortly to find a market in America for Chinese-grown cotton. The native staple being short and unsuited to the machines in use in American mills, it is not expected to compete with the home product for spinning. It is, however, well adapted for filling and short-end work, such as the manufacture of rugs, carpets, curtains, etc., and this is the market it is hoped to secure. That exported to Great Britain, Germany, and Italy is used principally for such work, and there is an increasing demand for it in those countries.

A large percentage of the staple remaining in this country finds its way to the cotton-spinning power mills, of which there are now 27 in China, actively engaged in turning out yarn for the native market. Chinese cotton is whiter than Indian and the product of the Shanghai mills is superior in color and cleanness to either Japanese or Indian yarn, but being shorter in staple it is not so strong nor is it so well reeled, owing to the low class of labor employed. The number of spindles in these 27 mills is approximately 750,000 and the production per spindle working day and night is from 11 to 13 ounces. Taking 12 ounces as an average, these spindles are capable of a daily output of 562,500 pounds, and on the assumption that work is carried on 320 days of the year, the annual output would be 180,000,000 pounds of yarn, a quantity equal to more than half the foreign import.

COTTON OIL MILLS.

In addition to the spinning mills referred to there are in China at least 10 cotton-seed oil mills located at Shanghai, Hankau, and Tungchow. I have seen no statistics as to the output of these mills or as to the quantity of oil consumed in China. Of the refined product, 1,186,000 pounds (value $29,000) were exported to foreign countries.

The seed of Chinese cotton is much smaller than the American, and American machines, especially the huller, do not give the best results. For this reason, I am told, the one foreign mill in Shanghai has recently replaced certain American machines with others of British manufacture. I understand an effort was made to have an American manufacturer adapt machines to the Chinese seed, but without result.

VALUE AND USE OF SEED.

The seed is also of inferior quality and worth from $11 to $13 per ton. Its yield is as follows:

Yield.	Per cent.
Crude oil	8
Cake	43
Lint	1
Dirt	1
Hull	47
Total	100

The crude oil loses 14 per cent in the refining process. The oil in its crude state is used for cooking and illuminating. In the refined state it is exported to foreign countries, principally to Australia, where it is used as an adulterant for butter and lard.

There is a considerable demand for the hull, which is used entirely for fertilizing purposes, and for which the Chinese farmer pays about

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$2 per ton. The seed cake, which is also in good demand, is utilized for cattle feed, and is worth from $9 to $11 per ton. There is little demand for the lint. The dirt is also bought by the farmers for fertilizing purposes and brings about $2.25 per ton.

The native mills, operating native machinery, have proved profitable to their owners, and the one foreign mill in Shanghai, although in operation but a few years, has also proved successful. I have heard that a native mill in one of the outports has recently installed foreign machinery, and it is possible that others will follow suit. If the American mill manufacturer hopes to hold this market for this class of machinery he must be prepared to adjust his present models to the local requirements.

Considerable cotton seed is sent out of the country, principally to Japan. In 1905 the exports reached 87,960,670 pounds, valued at $443,650, while in 1906 they fell off to 82,108.700 pounds, valued at $417,850.

EXPERIMENTS TO IMPROVE STAPLE.

The Japanese, who are the principal buyers of Chinese raw cotton, are deeply interested in the betterment of the local product, and there is now a movement on foot which, if successful, will improve its grade to such an extent that we may look for a great falling off in the export of American grown cotton to Japan.

A Japanese firm, in close touch with the Government, began experiments last year at Kangwang, Province of Kiangsu, with cotton seed obtained from several countries. Seeds from India and Japan gave poor results. The American seeds, however, have produced a cotton greatly superior to the native. The staple is good, but the color, owing to heavy rains, is poor. It is proposed to repeat the experiments next season, using the American seeds developed at Kangwang, and should the grade not fall off the seeds then produced will be distributed free to the farmers.

The Japanese hope in this way to procure a cotton of American grade which they can purchase at a low price and lay down in their own country with small cost for transportation. This accomplished, American cotton will only be bought by Japan when her requirements exceed China's production.

SALVADOR.

COTTON MANUFACTURES DOMINATE THE MARKET.

In transmitting the following information concerning the dry goods trade of Salvador Consul-General Samuel E. Magill reports that, on account of the climate, silks and woolens are worn only by an insignificant part of the population, and that cotton manufactures are the only dry goods worthy of consideration:

The following information relative to the classes of cotton manufactures imported, and the countries supplying the same, was obtained by a canvass of the wholesale houses of this city (San Salvador):

Gray domestics are imported in about equal quantities from the United States and the United Kingdom, the price deciding as the product of each country has its advantages for this trade. This ap-

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plies also to trade in gray drills, although at the present time almost all of the latter are bought in the United States.

The United Kingdom has the trade at present in white sheetings and lawns, as English manufacturers give greater latitude to purchasers in the matter of widths and quantities. Some local merchants believe English finish is superior to American.

American prints formerly held the market, but have lost it to the English owing to the great advance in the price of Americans and an increase in the Salvadorean tariff at about the same time. The import tariff is charged on weight, and the American prints, being heavier than the English, cost more to import. American manufacturers, declining to produce a lighter weight and give the variety in width and design offered by the English, have lost the trade, which has been secured by the Manchester manufacturers.

The market in drills seems open to competition, as local merchants buy from the United States, the United Kingdom, Germany, Italy, France, and Belgium according to personal preference. The impartial opinion seems to be that, while Italy, France, and Germany offer greater variety in style and design, the quality of drills from the United States and England is superior. In the gray drills the American are preferred, while in colors the United States and England secure about an equal share. Blue denims are almost all of American manufacture.

Yarns and thread are of English make, because the English brands are well known and the price is low. In the case of yarns the English hold the trade because of willingness to fill orders, however small, in any color or quantity and make packages in any size or weight desired by the purchaser. Laces are of English make exclusively, as are also fancy cotton dress goods. German blankets are preferred here to American, as the price is lower and a greater variety of design is offered.

SIDE LINES—POINTERS FOR AMERICAN MANUFACTURERS.

Almost without exception the importers of dry goods have side lines, most of them handling barbed wire, flour, oil, cement, galvanized iron, etc., and they also are extensive purchasers and exporters of the natural products of the country, such as coffee, balsam, indigo, hides, etc., so that it is quite safe to correspond with any of the firms in a list forwarded concerning trade in anything from cottons to cement and from thread to barbed wire. [List on file in the Bureau of Manufactures.]

Few local merchants have complaints to make about American packing or the American system of credits, the chief complaint being that American manufacturers do not seem to be sufficiently interested in securing the cotton-goods trade of the Republic, to make the styles the trade wants, and sell them in the widths and quantities desired by the local merchants.

American exporters of cotton goods to Salvador should note that the fractional currency of this country, as far as trade is concerned, does not contain "cents," although the Government coins them, the retail merchants refusing to accept or use them. Therefore the coins in use are 6¼, 12½, and 25 cents in value, and an increase of 1 cent a yard in the cost of a line of cottons in New York might necessitate an advance of 6¼ cents in Salvador, as there is no less coin multiple here.

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This may cause the American merchant to lose the trade, for it is the universal experience here that the prices of English, French, and German goods do not fluctuate as do those of the United States, which seem to respond more quickly to, and be governed more completely by, the changes in the price of baled cotton as made on the cotton exchanges of American cities.

Competition between steamship lines from European ports to Colon gives European merchants a lower rate to Salvador than American merchants have from New York.

A railroad to connect the railway of Salvador with the line in Guatemala which runs to Puerto Barrios is contemplated. If it is constructed, it will give an impetus to local trade, as by that route a more direct access can be had to and from the markets of the world, for Salvador would then have the advantage of an Atlantic port which it does not now possess.

CARPETS AND TAPESTRIES.

FRANCE.

A PROFITABLE TEXTILE TRADE OF THE DEPARTMENT OF THE NORTH.

Consul Chapman Coleman, of Roubaix, reports that the Department of the North is one of the most important seats of the tapestry and carpet industry in France, to which he adds:

Its manufactures, in greatly varied forms and designs, are exported in large quantities to foreign countries, including the United States, and the methods by which this success is achieved might, in some features, be profitably studied by American manufacturers of such goods.

The prosperity of this industry is attributed by local manufacturers, in a large degree, to the preparatory instruction obtained by young men in the industrial schools situated in this district. The chief of these are: "l'École Nationale Professionnelle," at Armentières; "l'Institut Industriel du Nord de la France," at Lille; "l'École des Arts et Métiers," at Lille; "l'École Pratique d'Industrie," at Lille; "l'Institut Catholique d'Arts et Métiers," at Roubaix, and "l'École Industrielle," at Tourcoing.

TAPESTRY WEAVING.

There are in this district some 27 factories in which tapestry goods are manufactured, 11 of which are at Roubaix; others are situated in the neighboring city of Tourcoing and in the nearby towns of Lannoy, Chering, and Commines. The principal fabrics manufactured under this head are gobelins, hangings, table covers, upholstery for furniture, curtains, with handsome and rich designs in silk and mixed textiles; other special manufactures consist of a kind of oriental tapestry; panels, macassars, piano covers with imitations of oil paintings, and reproductions from photographs—often made to order from special designs submitted. The latter specialty has found large favor in England, the United States, and Canada.

It is claimed that these varied tapestry fabrics in a number of branches of art manufacture are hardly surpassed, if equalled in excellence, elsewhere. It would seem, however, that an exception should

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be made in this regard in favor of the exquisite hand-loom products of high-warp tapestry, in woolen and silk yarns, as also in metals, such as gobelins, and of the low-warp tapestry, for which the National Manufactory at Beauvais, Department of the Oise, and the manufacturing establishments at Aubusson and Felletin, Department of the Creuse, are celebrated. Here, too, belong the beautiful tapestries in wool and silk of the factory at Nimes.

The products in tapestries of the looms at Roubaix, Tourcoing, and elsewhere in the Department of the North, are, owing to the economy secured in their manufacture by the prevailing, almost exclusive use of steam power, sold at remarkably low prices, except as regards certain classes of fabrics of high artistic merit, such, for instance, as decorative reproductions of paintings on "grosgrain" tissues, which, being much in vogue at present, command large prices; of these tissues, certain imitations of gobelins and flandres, the work of artists of talent, and executed with great skill and care, command high admiration.

CARPET PRODUCTION—LARGE SHIPMENTS TO AMERICA.

The carpet manufacturing industry in this district is one of the most important conducted anywhere in France in this branch of manufacture. There are 18 carpet factories, established on a large scale, employing 200 to 1,500 hands each, situated in the Department of the North, at Roubaix, Tourcoing, Lannoy, and Hem. Their greatly varied products, intended in a large measure for export, embrace moquettes, orientals, brussels, savonnerie, jacquards, axminsters, velvets, ingrains, oriental squares, rugs, etc.

The following classes of the manufactures of this origin merit special attention: In the first rank are the so-called knotted-pile carpetings, such as the savonneries, and most of those known as orientals; the moquettes, an intermediate fabric between short-piled carpets and oriental velvets. These moquettes, which are highly esteemed, were first made at Abbeyville, at as early a date as 1667, and soon thereafter at Aubusson and Amiens.

A veritable revolution was brought about in this industry in 1840, with the advent of the Wood mechanical loom, operated by steam. This loom was immediately adopted in the United States, but not until much later by French manufacturers, who suffered great loss at the time through this delay. But, though slow to change their methods, the French have, it appears, abundantly recovered lost ground, and now avail themselves of the most improved machinery. The employment at the present time in this district of the Jacquard mechanical appliance to looms in substitution for design cards, has greatly conduced to economy in manufacture. With the aid of this appliance, reduced in size, of which as many as 5 can be used on 1 loom, carpetings having a width of from 10 to 17 feet are readily manufactured and without repetition of the designs.

The direct export of tapestries and carpetings to the United States from this district amounted for the fiscal year ended June 30, 1907, to about one-half million dollars, while large quantities are also known to have found their way to American ports, indirectly, through shipments from England. Large and increasing numbers of the most expert operatives in this industry emigrate from year to year—to the great concern of their employers—to the United States, to seek and probably readily find employment at better wages.

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BELGIUM.

ANTIQUITY OF THE INDUSTRY—EMPLOYEES AND EXPORTS.

In reply to an inquiry concerning Belgian textile industries, Consul-General Ethelbert Watts writes:

The weaving of flax has been carried on in Belgium from remote times. Flax cloth was woven in certain parts of Belgium in the time of Cæsar. Several centuries later Flemish drapers, especially those of Brussels, Ghent, and Louvain, manufactured woolen cloth which had a great reputation and was exported to France, Austria, and Italy. In the fourteenth and fifteenth centuries carpets and tapestry were manufactured in Brussels, Tournai, Ypres, and Audenarde. Since that time the Belgian textile industry has passed through alternate periods of prosperity and depression. The old manufacturing centers, such as Brussels and Louvain, have been deserted and the different branches of the industry have come to be associated with certain localities. For instance, woolen articles are manufactured at Verviers, linen in the two provinces of Flanders, and cotton goods at Ghent, Renaix, Mouscron, Braine l'Alleud, etc.

At the present time Belgium produces textiles of wool, half wool, cotton, linen, and linen mixed with cotton; hemp and jute textiles; and silk and half silk fabrics. Fabrics of pure wool or wool mixed with cotton are manufactured in 112 establishments, which employ 8,448 persons. The mechanical weaving of cotton is carried on in 61 establishments, employing 7,921 persons. In addition 2,800 persons working at home are engaged in the manufacture of cotton fabrics. White linen of all kinds is manufactured at Courtrai, Ghent, Iseghem, Alost, and Ruysbroeck. Damasked linen is especially manufactured by two important Belgian firms at Ruysbroeck and Ghent. The number of persons employed in weaving linen by machinery is 17,600.

The total value of textile fabrics exported from Belgium in 1906 was $4,957,398. The total value of linen exported from Brussels to the United States in 1905 was $569,481; and in 1906, $649,228.

THE CARPET INDUSTRY.

The carpet industry has almost completely disappeared from the Brussels district. The English have adopted the designs of the beautiful Brussels tapestry and introduced them to the trade as "Brussels tapestry carpets." The so-called Brussels carpets are manufactured in England and supplied to the Belgium market at prices much lower than those for which the same carpets can be produced in Belgium, for the reason that the English use modern machinery and manufacture in large quantities.

In 1889 there was but one small carpet factory in Tournai, which manufactured a velvet carpet, employing only 8 workmen. Since then the carpet industry has revived, and the Tournai factory is increasing its production. In 1891 an attempt was made to revive the carpet industry by employing the labor of the male inmates of the almshouse at Merxplas. This venture not only realized the anticipation of its promoter, but aroused interest which resulted in the establishment shortly afterwards of a branch factory at Westerloo. Imitations of Smyrna, Turkish, and Persian rugs were manufactured at Merxplas and at Westerloo. There were about 100 looms in operation in the two establishments. About 80 men, inmates of the

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almshouse, were employed at Merxplas, without compensation; and about 100 girls were employed at Westerloo, who were paid from 20 to 25 cents per day. A few years ago the manufacture of carpets at Merxplas was discontinued, but the factory at Westerloo has increased its manufacture and now employs about 150 girls. The present annual output is from 1,500 to 2,000 large rugs and from 3,000 to 4,000 small rugs.

UNITED KINGDOM.

FACTORY OPERATIONS OF KIDDERMINSTER—EXPORT TRADE.

Consular Agent James Morton makes a report on the carpet trade of Kidderminster, from which the following is gleaned:

The first carpet factory was erected in Kidderminster in 1735. It is also probable that the firm which established it was the first to weave the "Kidderminsters," now chiefly made in Scotland, but the manufacture of which by power looms has recently been resumed in Kidderminster. There are now some 14 firms engaged in the weaving of carpets, and 2 in the worsted spinning trade. The textile industry, however, is not entirely confined to Kidderminster, but embraces 1 large factory each in the neighboring towns of Stourport and Bridgnorth.

Large quantities of carpets are exported to Canada, Australia, and New Zealand, and other British colonies, also to Brazil, and other States in South America; a small and insignificant quantity still goes to the United States. France, Germany, and Russia, also take some carpets, and agents from the principal firms visit nearly every part of Europe to solicit orders.

Kidderminster exported direct to the United States in 1906 less than $40,000 worth of carpets; statistics of exports to other countries are not obtainable, but it may be stated that the exportation of "carpets, not being rugs," from the United Kingdom was $4,751,937 in 1905, $5,465,468 in 1906, and $6,000,433 in 1907. The shipments to the United States from the entire Kingdom for the three years in question were $260,000, $430,397, and $262,349, respectively.

ASIATIC TURKEY.

TRADE COMBINE FORMED BY A NUMBER OF CARPET MANUFACTURERS.

Consul Ernest L. Harris, who previously reported that six of the leading carpet manufacturers in Smyrna were about to combine their interests into one large corporate company, now adds:

This has been accomplished, and since January 1, 1908, they have liquidated their several individual interests, and are now known as the Oriental Carpet Manufacturers, Limited, registered in the British consulate-general of Smyrna. This is the first time that a great combine like this has ever been organized in Smyrna, and it must be looked upon as an experiment, for the present at least, the success of which only time will demonstrate. Of course this new company does not include all the firms in Smyrna which do a carpet business. A large number did not join the combine.

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CHINESE RUG MAKING.

DEVELOPMENT OF THE INDUSTRY IN LEADING CITIES.

Consul-General James W. Ragsdale, writing from Tientsin, says that the American people are scarcely aware of the wealth of China in all sorts of woven cloths, and more especially as to hand-manufactured rugs and carpets chiefly made in Tientsin and Peking, where 1,000 persons or more are employed in the production of rugs of all kinds of material, i. e., silk, sheep's wool, camel's wool, jute, hemp, felt, yak hair, and even the hair of the cow. Mr. Ragsdale forwards some samples and designs of these rugs, accompanied by an illustration and description of their manufacture:

A high upright loom consisting of large beams above and below, from which the warp is stretched, is used. In front of these several men and boys (from 1 to 10, according to the size of the rug) are seated, knotting into the warp tufts from balls of yarn hanging overhead, the design in color being so placed that each workingman can see it without difficulty.

Workmen are paid at the rate of from 20 to 40 cents Mexican per day (about 10 to 20 cents gold). One square foot is an average day's work. The industry has recently been introduced in several of the industrial schools for the employment of the poor. The silk carpets are very like those produced in India, Turkey, or Persia in colors and quality of material, but vastly different in design if left to Chinese selection. Foreign designs, if furnished, are faithfully copied.

These rugs differ greatly in quality. In some the warp is cotton, while in others the warp, as well as the nap or woof, is silk. Some are made of even surface, while in others the figures are raised. The quality also differs in the number of warp threads used to the inch, which varies from 12 to 20, as well as to the quality of the silk yarn. The cheapest are sold at from $1.30 to $1.50 Mexican per square foot, while the better qualities readily bring from $2 to $5 per square foot. The quality most in demand, however, ranges in price from $2 to $2.40 per square foot. They are made in all sizes and are made for floor, table, and piano covers and wall draperies.

WOOL FABRICATIONS—YAK RUGS RARE AND EXPENSIVE.

The wool rugs are in far greater demand and are largely used throughout China, Japan, and the East. Many are exported to Europe, and lately to America. They are made on the same loom and in the same manner as are the silk rugs. Those of all sheep's wool, with cotton warp, range in price from 40 cents to $2.50 Mexican per square foot, the size, design, and color to suit the taste of the purchaser. The wearing qualities of these carpets make them a very economical floor covering, and age softens and blends the colors, which are, in all reliable places of manufacture, of vegetable dyes.

The carpets especially favored by the local residents and tourists are made from camel's wool, the prices ranging from 25 cents to $1 per square foot. These rugs are heavy, and frequently are fully one-

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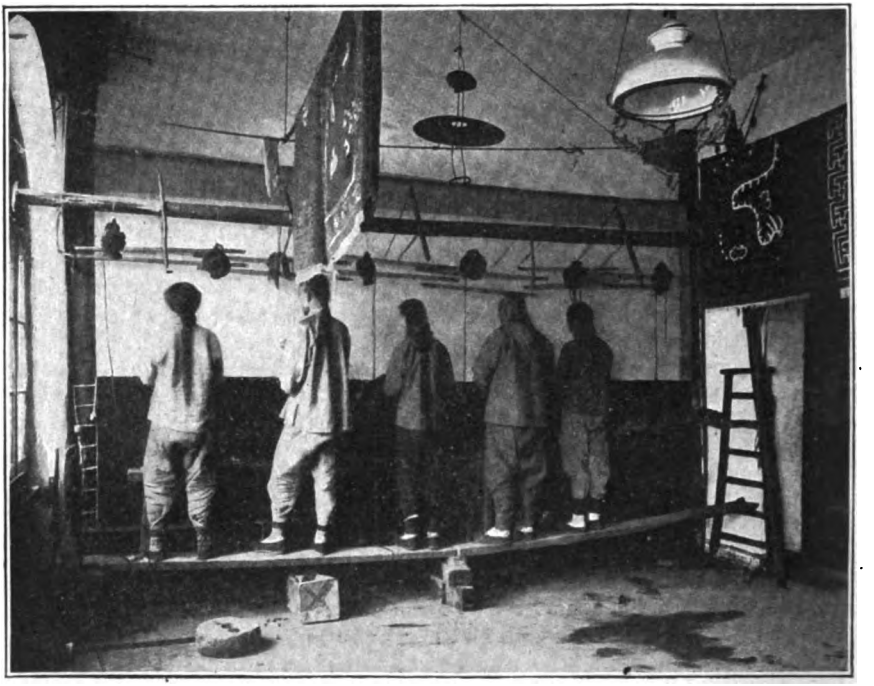
half an inch in thickness. They are fashioned in all kinds of designs—floral, geometrical, and dragon.

The rugs made from the other materials mentioned (the yak excepted) are used only by the natives and range in prices from 5 to 25 cents per square foot. Those made from the hair of the yak are very rare and expensive, comparing in style and beauty with the finest silk rugs. They are made only in the interior provinces of China.



Rug making in China.

It is interesting to note the origin of the carpet industry in China. The method of manufacture was first used in making saddlecloths and trappings for horses used in processions and by Chinese of high rank, developing into the rug and carpet industry on the advent of the foreigner. The saddle blankets are still used, and often are highly finished in the most elaborate designs and patterns.

[Accompanying the foregoing report were samples of various designs and colors of Chinese rugs made from silk, camel's hair, and sheep's wool; also, 8 hand-painted patterns of rugs, which were obtained by the consul-general at considerable expense. These are all on exhibit at the Bureau of Manufactures. They will be loaned, in the order in which applications are received, only to textile manufacturers and textile schools.]

IMPORTATIONS OF BLANKETS AND RUGS.

PURCHASES OF THESE FABRICS AND COUNTRIES SUPPLYING THEM.

Consul Wilbur T. Gracey transmits from Tsingtau the following report regarding the importation of blankets and rugs in China:

Statistics show that a large trade in blankets and rugs is opening up in China which is continually increasing, and should serve as an outlet for American-made goods. The class of blankets which are most popular throughout Shantung, and North China generally, is a

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light-weight cotton blanket which is being imported principally from Japan. These blankets appear in four varieties on the local Tsingtau market, as follows:

First quality cotton blankets, Japanese, measure 1.53 by 2.12 yards, and sell locally at retail for $1.10 Mexican ($1 Mexican=about 50 cents gold) each. They are packed in boxes of 100 pieces and no discounts are made unless purchases are made of unbroken boxes.

Second quality, measure 1.42 by 1.92 yards, are packed in boxes of 200, and retail at $1 Mexican, each.

Third quality, measure 1.31 by 2.18 yards, are packed in boxes containing 300, and retail at 56 cents Mexican, each.

Fourth quality, measure 1.4 by 1.92 yards, are packed in boxes of 300, and retail at 75 cents each.

The continent of Europe, principally Germany and the Netherlands, exports a large quantity of these blankets to China. During 1906 the total importation into this country was 954,135 pieces, valued at 486,626 haikwan taels (1 tael=83 cents gold), 302,321 imported from Germany, 312,700 from the Netherlands, and 117,296 from Japan.

MARKET DISTRIBUTION—WOOLEN GOODS.

Shanghai is the largest market for cotton blankets, where 275,705 pieces were imported in 1906. Newchwang followed with 246,219, while Shantung Province (through the ports of Tsingtau and Chefoo) consumed 128,899. Many of these imported at Tsingtau came through the Shanghai markets, and did not, therefore, appear on the Tsingtau statistics. Some, however, were imported direct by two firms [names on file with the Bureau of Manufactures], which are the largest dealers in this class of goods in this city.

In addition to the cotton variety, large numbers of woolen blankets and rugs are imported into China. British blankets are found in the local shops weighing 9 pounds and selling at $8, Mexican, per pair; a better quality, weighing 12 pounds, sells for $10, Mexican, per pair. American blankets are found in only one quality, weigh 12 pounds, and sell at $18, Mexican, per pair. They are considered the best, but the prohibitive price puts them outside the means of most purchasers.

Woolen blankets are usually white with blue, pink, or brown borders, edges bound with silk ribbon. A popular variety shows a plaid pattern over the entire blanket in pale blue or pink, and another is a light-brown blanket with colored border.

Woolen rugs are very much used, the most popular being of a rough black surface, resembling fur, with a bright yellow back on which a brightly colored figure of a tiger is printed, life size. They are known as "Lao hu" (tiger) rugs, and are sold by the thousands to the natives. A variety of the same rug has the black fur effect on one side, a bright magenta fur effect on the other, occasionally varied by a bright vermilion back. The backs of these rugs are invariably very bright and florid, sometimes showing bunches of bouquets of highly colored roses or other flowers.

SMALL AMERIÇAN SHARE—SELLING METHODS.

During 1906, 1,767,757 pounds weight of blankets and rugs were imported into China, the principal market being at Shanghai, the statistics of the customs showing that 595,034 pounds were imported

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into that city. Shantung Province is the second largest consumer, 125,111 pounds having been imported through the two ports of Tsingtau and Chefoo. These blankets and rugs come principally from Great Britain, the imports from England (including Hongkong) having been 1,176,987 pounds during the year; 260,159 pounds were imported from Germany, and 287,204 pounds from Italy. The imports from the United States were so small that they were under 1,000 pounds and do not, therefore, appear separately on the statistics.

The blanket trade of China is valued at 1,192,213 haikwan taels, in which the United States has practically no share, and this notwithstanding the fact that much of the wool and cotton with which these goods are manufactured originates in the United States.

Most of the business is transacted through the regular piece-goods firms of the Far East, and the only way in which America could secure a share is by the manufacturers in the United States sending their personal representatives to China and, through American firms and American agents, compete with the business firms of Great Britain and the European Continent. The importation of blankets and rugs in China has increased enormously during the past three or four years, having nearly doubled since 1903, and most of this increase is due to the efforts on the part of German and Continental firms to cater to the wants of the Chinese people. A complete investigation of this market would well repay American manufacturers, who must cater to the existing trade.

MEXICAN DRAWN WORK.

DEVELOPMENT OF THE INDUSTRY ALONG UP-TO-DATE LINES.

Writing from San Luis Potosi, Special Agent Arthur B. Butman furnishes the following description of the textile drawn work of Mexico:

The product of perhaps no other domestic industry of Mexico is so well known in the United States as the Mexican hand-drawn work. Owing to the popularity of this work, it may be interesting to the American drawn-work makers and importers to obtain an idea of what drawn-work making means to-day in Mexico. The following brief résumé of the industry is therefore furnished. It is claimed that Mexican workers are unexcelled in the beauty of their product, either for intricate designs or fine workmanship.

The city of Aguas Calientes, capital of the State of the same name, may be considered the particular home of the drawn-work industry, although it is carried on in many other portions of the Republic. At Aguas Calientes it is the sole occupation of a large percentage of the female population, both women and girls. The commercial value of the work was practically unrealized until about twenty-five years ago. At that time the drawn work was an occupation of women of the poorer classes, who possessed patterns which had for a long time been successively handed down in the same family.

SECRECY GIVES PLACE TO MODERN INSTRUCTION.

These patterns or designs were jealously guarded. The work was crude. In many of the old designs the lack of a proper idea of con-

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struction is plainly evident. Commencing in one corner of the cloth square the worker proceeded to work around the square irrespective of the pattern, and when the ends met a discrepancy in design naturally resulted. The work was fringed but not buttonholed, and the edges were consequently uneven. These imperfections may doubtless have been the outcome of copying designs again and again by those who had never been systematically taught until the original perfect form was lost. In the modern pieces the difference is at once noted. The improvement in the modern drawn work over the old is largely due, first of all, to the energy and untiring efforts of a certain philanthropic American woman who became interested in this Mexican work and the woman workers of Aguas Calientes.

First these women were taught to do buttonhole stitching, later they were shown how to make a hem, and to hemstitch. It was then demonstrated to the workers that it was possible to inaugurate a system in the work, as well as in the design, and that by counting the threads—since the process of the work is first to draw the threads, then stretch the cloth in a wooden frame and afterward weave in the design with a short, fine needle—they would be able to make the design fill the square with uniformity.

Systematic and intelligent teaching followed, until from the straight work on pillowcases and napkins the women became able to accomplish the elaborate designs which are now for sale not only in Mexico, but are exported in considerable quantities to the United States. The work was also taught in the schools for girls. More or less difficulty was experienced in an endeavor to convince the workers of the practicability and personal advantage of working collectively and outside their own homes. For some years the women refused to do this; latterly, however, they have consented to go to localities where the rooms are of a size to enable them to work on the larger pieces, such as bedspreads and tablecloths, which can not be made in their small dwelling rooms. The greater part of the work supplied to local dealers is usually performed by contract, and it is said that the workers average an approximate daily wage of from 15 to 25 centavos (centavo=one-half cent American currency). Each person works on one design only. The linen used is practically all of Irish manufacture.

ENTIRELY A HOME INDUSTRY.

So characteristic is this particular handiwork of the country that articles with drawn-work designs are universally found in Mexican homes, from the square of coarse cotton thus embellished, covering the dinner basket of the poor, to the finest of linen tablecloths, exquisitely wrought, on the table of the wealthy. No accurate statistics either of the number of persons employed in the industry or of the value of the output are obtainable. To ascertain the former would be a difficult matter, the industry being, as stated, entirely a home one, but it is estimated that the latter reaches about $1,500,000 Mexican ($750,000 American) annually for the State of Aguas Calientes alone. This estimate is based upon the amount and valuation of the linen used in manufacture of the articles.

Large quantities of Mexican hand-drawn work are annually purchased in this country by tourists from the United States, the value of which is not known. Consul W. D. Shaughnessy at Aguas Calientes states that there was invoiced at his consulate as exported to

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the United States drawn work to the values of $10,000 for 1906 and $7,000 for 1907.

[Blue print illustrations and a catalogue showing designs of drawn work now being manufactured in Mexico were forwarded by the special agent, and may be seen at the Bureau of Manufactures.]

ITALIAN SILK MARKET.

DEPRESSED CONDITION OF THE INDUSTRY IN JANUARY.

The following report, covering the world's supply of cocoons and raw silk and the condition of the silk industry of Italy, dated January 31, 1908, is furnished by Consul James E. Dunning, of Milan:

The month of January has been regarded at Milan, the center of the Italian silk trade, as an exceptionally critical time, during which tendencies which began to manifest themselves late in 1907 and causes reflected from events both in and out of the market in the late autumn of 1906 would come to some sort of a definite head, indicative of their final effect. In so far as these conditions have approached anything like a conclusion, January has been a month of stagnation and broken prices.

For the last three months of 1907 prices fell off heavily from those of similar periods in 1906, though it is true that they remained higher than they were in either 1905 or 1904. At the end of December there had been a drop of about 12½ per cent from the market prices of 1906 at the corresponding date. January at Milan opened with this recession going steadily toward a lower figure, and until the middle of the month the movement continued. By the 20th the receding prices had lost about 30 per cent from the level of 1907, and there remain (January 31, 1908).

Many spinners who closed down their mills at the end of 1907 have not reopened them and are giving no promises of so doing. Others have opened on half time since January 15. Most of the January business was devoted to orders and to certain small lines for which the domestic market offers a more or less steady demand under all conditions. Such orders as came in—and on account of conditions outside of Italy, particularly in the United States, these were small in number—were accepted at prices and terms which served to unload a certain amount of overstock, but which had a disadvantageous effect on general market prices. The special halt in the movement of those weights of raw silk which form the bulk of the extensive trade with the United States rather glutted the home market in these qualities. This phase of the situation can best be shown by the statement that where this consulate had certified to the shipment of 1,273 bales of raw silk in January, 1907, the number of bales certified in January, 1908, was only 568. Nothing so well illustrates the present state of things between Italy and its foremost buying market.

A bulletin issued by one of the trade organs on January 31 stated that it was felt the last word had not then been said as to the low mark of prices, but that a rapid betterment of things was looked for in the United States.

SUPPLY OF COCOONS AND SILK—PRICES OF SILK WASTE.

During January the cocoon market was slow and presented a gradually falling scale of prices. The Milan Silk Association re-

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ported that the total world's supply of cocoons early in January was 8,239,193 pounds—the largest stock reported in five years—against 4,869,253 pounds at the beginning of 1907. The report of the world's supply of raw silk, including Italian, Chinese, and Japanese, for January, 1908, shows a total of 6,655,072 pounds, against 3,239,055 pounds in January, 1907. This vast overstock, when connected with trade conditions, can not be said to be favorable to the outlook.

The Silk Association and the Association of Silk-Waste Spinners have had long arguments in an effort to fix on a stated price for waste as a basis for future market conditions in this important article of shipment. The spinners, during January, presented an ultimatum, with a flat price of 66 cents per pound for raw silk waste, to apply to all visible supply of waste in this market. The Silk Association also arranged to market the entire visible supply of "recotti," the last refuse of the manufacture of silk waste, to a French buyer at 14 cents per pound.

Sales of spun silk waste for January were fairly good, and the outlook in this branch of the trade is regarded as moderately good, though prices have suffered along with those in all other branches of the industry.

SILK TRADE WITH RUSSIA.

The alarm created in Italy by the proposal of the Russian Government to place a prohibitive import duty on raw silk has been allayed by the negotiation of the new commercial treaty which leaves that valuable market still open. The Russian proposition contemplated a sliding tariff, beginning at nearly $10 per quintal (220.46 pounds), about 13.8 cents per pound, on the date of the going into effect of the new law, and increasing during the next following five years to nearly $100 per quintal (41 cents per pound).

The new import tariff arranged by the treaty is equal to 11⅞ cents per pound on Italian raw silk, or between 2 and 3 per cent of its average value. This is satisfactory to the Italian trade. Further provisions of the treaty will allow the free importation of cocoons into Italy from Russia, an important point.

Large quantities of silkworms and cocoons are brought into Italy from the Russian possessions in the Caucasus and Turkestan, while it is claimed by competent Italian authorities that as much as four-fifths of the silk imported into Russia is provided exclusively by Italy. Careful calculations made up in Milan estimate the value of silk exports to Russia in 1905 at $7,500,000.

SWISS RIBBON INDUSTRY.

METHODS FOR WEAVING, DYEING, AND FINISHING.

Consul George Gifford furnishes the following information concerning ribbon weaving and its allied industries—dyeing, finishing, and printing—in the Swiss city of Basel and surrounding districts.

Ribbon looms were restricted to weavers' dwellings until the steam engine, in 1840, brought the factory system, although the house industry still remains the most interesting branch of the business. In 1880, when nearly all the great factories were built, out of a total of 7,000 looms 5,000 were in the houses of the peasants of the adjoining country districts, and it is estimated that that proportion holds good

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to-day. The peasant weaver finds a remunerative and most welcome additional occupation at the loom for the leisure hours of himself and family, especially in winter, when his farming no longer engages his attention. The loom is furnished to him by the great Basel manufacturers, who also send him, by special messengers, the silk already warped, the shoot or woof wound on bobbins, and collect the finished ribbons, all without charge to him.

The peasant weaver has seen within a few years a complete and agreeable revolution in his trade through the use of electricity as the motive power of what can no longer be called the hand loom. To the village cottage and the lonely farmhouse the wire now brings power and light from the works on the Rhine, at Rhinefelden, and the weaver is thus enabled to employ all except quite small members of his family in an occupation which no longer requires any physical effort, but only intelligent attention.

The closely allied subsidiary industry of silk dyeing enjoys one great advantage which has, perhaps, indirectly helped the ribbon business of Basel in its competition with its European rivals, St. Etienne and Barmen. This advantage is the special quality of the water, which is declared to be of prime importance in dyeing—so important that orders for work are received from distant points in Europe in cases where the most satisfactory results that can be attained by the dyer's art are required.

OUTPUT—EMPLOYEES—MANUFACTURERS.

Basel has doubled in population within thirty years and now contains 130,000 people, but the ribbon business has not kept its relative rank as decidedly the leading industry of the little canton. The ever-growing tariff wall of the neighboring States and the forced establishment of factories on their territory by Swiss manufacturers—at Ludwig, Alsace, at Grenzach, Grand Duchy of Baden, and at Bregenz, Austria—has somewhat checked its growth as a strictly local specialty. The competition of Barmen, with its cheap ribbons, has also had its effect, while the enormous production of the better all-silk goods in Paterson and other American towns has much reduced the export to the United States. But there are still employed in the ribbon industry proper about 13,000 people, as stated by the secretary of the Basel chamber of commerce. To this number should be added 1,200 persons engaged in the associated and dependent industries of dyeing, finishing, and printing.

There are now 15 Basel ribbon manufacturing firms and corporations, from whose offices in this city not only the local factories but the numerous establishments in Germany and Austria, as well as the very extensive house industries of the Jura, are directed. All are large and solid houses, in many of which representatives of the families of those who founded them centuries ago are still active.

The average output of ribbons manufactured by Basel firms on Swiss soil may be taken as having a value of $8,000,000, seven-eighths of which is exported. At the present time England is by far the best customer. The value of ribbons declared at Basel for export to the United States during the fiscal year ended June 30, 1906, amounted to $1,035,548 and during the calendar year 1906 to $821,588.

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WOOL TRADE.

AUSTRALIA.

INCREASED SALES—ANTICIPATED DECREASE IN PRODUCTION.

Consul-General John P. Bray sends from Melbourne, under date of December 21, the following review of the Australian wool trade:

The last wool sale in Australia for the year 1907 was held on December 20 and was very firm for the best merino, comeback, and fine crossbed. The following table shows the total offerings and sales (which are by auction) of wool, in bales, in Australia from July 1 to December 20, 1907, compared with those of the previous year:

	1906.		1907.	
	Offered.	Sold.	Offered.	Sold.
Victoria	297,966	285,179	353,653	318,573
Sydney	368,837	368,266	438,000	385,000
Adelaide	109,304	102,396	121,157	109,020
Brisbane	53,007	47,016	67,605	57,813
Total	829,114	802,857	980,415	870,406

The increase in sales is thus about 68,000 bales, as compared with the sales to the end of 1906. The following is an estimate compiled from trustworthy figures of the number of bales likely to be offered for sale during January and February, which will practically close the season, compared with the same two months in 1907.

	1906 (estimated sales).	1907 (actual).	
		Offered.	Sold.
Melbourne	51,000	123,809	130,602
Geelong	19,000	25,045	25,230
Sydney	180,000	280,201	266,674
Adelaide	2,000	2,315	2,693
Brisbane	15,000	10,285	9,585
Total	267,000	441,655	434,874

It is anticipated that the season will end with a decrease in the production of about 120,000 bales in comparison with last season.

ASIATIC TURKEY.

REACTION IN THE SALES MARKETS OF ASIA MINOR.

Consul Ernest L. Harris supplies the following report on the wool trade of the Turkish port of Smyrna:

The wool which reaches the Smyrna market is produced in Angora, Karahissar, Pergamus, and Cassaba. Shearings take place twice a year between the months of April and September. I have heard the statement made in Smyrna that if it were possible to introduce into Asia Minor and maintain some system of washing which would tend to refine the quality now produced, this country would be one of the best woolgrowing regions in the world. However, Anatolian wool is a very much sought after article in every market.

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The crop for the past year was about the same as that of 1906. Prices opened very high, and shipments were brisk, until financial difficulties occurred, both in Smyrna and abroad, when absolutely no orders could be obtained. Stocks rapidly accumulated, and prices went down to an unheard-of limit. The action of the Smyrna banks in limiting credits and raising the rate of interest at the same time to 9 per cent on all loans forced holders to deposit their stocks in the banks' depots. But even at the present low prices there is no demand from America, at least for the time being.

During 1907, $199,711 worth of wool was invoiced at this consulate for the United States.

TOWELS IN CHINA.

STEADILY GROWING PURCHASES OF THIS TEXTILE ARTICLE.

The following report regarding the importation of towels into China is transmitted by Wilbur T. Gracey, consul at Tsingtau:

Tsingtau is the largest importer of towels in China, and during 1906 140,625 dozen honeycomb and huckaback towels passed through the customs at this port. The total importation of this class of towels into China amounted to 752,469 dozen during 1906, in addition to 924,024 dozen of other varieties. Of the huckaback, 231,957 dozen were supplied from Japan, which country also exported to China 627,233 dozen of other varieties of towels and toweling. Great Britain supplied 232,278 dozen and Hongkong (probably originating in Great Britain) 193,104 dozen of the huckaback quality, and of other kinds Great Britain supplied 233,732 dozen.

It will be seen by these statistics that the Chinese people are becoming large buyers of the cheapest quality of foreign towels. The varieties found on this market are mostly small, selling at retail at 10 cents Mexican (about 4½ cents gold) each, or from 90 cents to $1 Mexican ($1 Mexican equals 45.3 cents gold) per dozen. The entire Province of Shantung appears to have been supplied through Tsingtau. Several Chinese and two or three German firms are interested in the importation, the former making their purchases on the Shanghai market and the latter importing direct from Japan or Europe. The British variety of towel sells at a slightly higher price (15 cents each), is somewhat larger, and of a thicker and better quality. The demand for this class of goods and the importation from Japan has increased enormously during the past few years. The importation from Japan in 1903 of the huckaback variety was 63,395 dozen, which in 1906 increased to 231,957 dozen, while the imports of other varieties have increased from 273,118 dozen in 1903 to 627,233 dozen in 1906.

While it would probably be impossible for American manufacturers to compete with the Japanese on the cheaper grade of goods, owing to the advantages of Asiatic labor and nearness to the market, yet as regards the better qualities supplied by the British mills there should be an excellent opportunity for competition. There is a call for cheap toweling in China and by catering to the wants of this trade Americans can certainly secure a portion thereof.

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NEW HEMP MACHINE.

EQUALLY EFFECTIVE IN SCUTCHING MANILA AND SISAL FIBERS.

Consul Thomas H. Norton, of Chemnitz, writes as follows concerning the new hemp machine which has been recently invented in Germany:

A German engineer has recently designed a scutching machine which can successfully replace the current manual operations and not only substitute mechanical power for human effort but preserve uninjured the finer fibers. The machine has been constructed by a prominent firm [address recorded at Bureau of Manufactures] at Magdeburg, and recent experiments have been conducted upon Manila hemp grown in German botanical gardens. The results have been so satisfactory that the constructing engineer is about to proceed to German East Africa with the machine and test for several months its full adaptability under colonial conditions.

The Musa textilis, of the Philippines, has been introduced into German East Africa and flourishes there, but botanists have found that the Musa ensete, which yields a fiber fully equal to the famous Manila hemp, is indigenous to the colony. The only difficulty encountered in this connection with the development of this tropical industry has been the lack of suitable machinery for the scutching or liberation of the fiber from the soft parenchyma which incloses it and from the tissues of the bark.

The operation of scutching as practiced in the Philippines is of the most primitive nature. The crude process of rubbing, beating, and shaving used in the Islands gives fairly good results, as far as the production of the coarser grades is concerned, but it is destructive of the finer and more delicate fibers, not only of the Manila hemp plant, but also of several other monocotyledons, particularly of the pineapple, the leaves of which yield a choice grade of fiber.

The invention is also adaptable for the sisal hemp of Mexico, the economic importance of which is increasing steadily.

The details of the new scutching machine have not yet appeared. Undoubtedly the invention will be of much importance in the evolution of Philippine agriculture and industry.

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FORESTRY PRODUCTS.

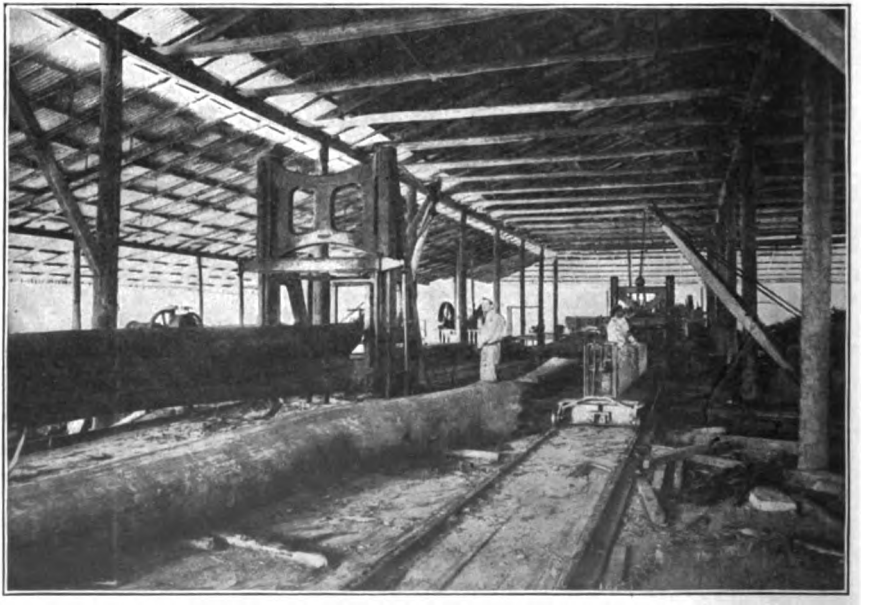
LUMBER TRADE.

PERU.

DESCRIPTION OF A SUCCESSFUL SAWMILL IN THE IQUITOS REGION.

In a previous report Consul Charles C. Eberhardt, of Iquitos, referred to the field that exists in the Peruvian part of the Amazon Valley for the establishment of a lumber business, sawmill, etc., and also to a certain mill, within one day's journey of Iquitos by launch, which had been unusually successful. The consul now makes the following supplementary report:

The machinery used in the mill referred to could by no means have been called first class. This same mill has undergone considerable improvement during the past year, and while there are in all



Interior of sawmill, near Iquitos, Peru.

five mills of different sizes situated at various points along the river within a few hours' trip of Iquitos, this is the only one which can be said to be dependable, in a business way, the others running only at irregular intervals, chiefly because of inability to secure labor, either skilled for the machinery, or unskilled for felling the trees, etc.

This mill, together with the carpenter shop (or planing mill), storage shed, tracks, dry kiln, etc., covers approximately 3½ acres

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of ground. The buildings are made of a framework of rough native timber, covered with roofing and siding of corrugated iron. The machinery in the mill proper includes two vertical saws, two circular saws, one band saw, winches, a 28-horsepower engine and other necessities of such an establishment, all of German or French manufacture, while that of the planing mill, including jointer, planer, band saw, circular saw, a 60-horsepower engine, in fact almost everything that goes to make up a first-class planing mill, has come from the United States, and the work is in charge of an American machinist with an American assistant. The dimensions of the sawmill are approximately 100 by 200 feet, the planing mill 40 by 115 feet, and the storing shed 40 by 80 feet.

OPERATIONS OF THE MILL.

I am informed that the original tract of land, of some 2,000 acres (all timber), and the improvements to date, have cost approximately $250,000 United States currency, a good share of the profits of nearly every year having been immediately reinvested in improvements, and while the owner has always earned a good percentage on his investment, he states that he has also lost very heavily at times, through lack of knowledge of how such a business should be conducted; that he has paid dearly for his experience, but that now, after having spent during the past year approximately $55,000 on improvements, he feels that he is in a position to reap big profits, having cleared something like $19,000 United States currency during that time, even after having undergone all the expense referred to.

While the other mills will naturally secure some of the business and may at some time in the future compete successfully, at present this one manufacturer may be said to have almost a monopoly of the lumber business. The mill has a capacity of about 6,000 feet per day, and as the demand for lumber is always in excess of the supply, the manager finds a ready market for all the output of the mill, though for several causes, chiefly scarcity of labor and logs, running daily at full capacity is rendered impossible.

As the rivers are depended upon entirely as a means of transporting the logs to the mill, only the timber near the streams is cut and later rafted downstream to the mill. Even on the tract belonging to the mill property, aside from logs that can be handled with a winch or windlass and cable from the nearby mill, only such trees as grow near the river have been cut down.

SUPERIOR RAFTING FACILITIES.

The mill also does a general jobbing business, and persons needing lumber raft their logs to the mill, where they are cut into the dimensions desired, the mill owner receiving in payment, one-half either of the logs in the rough, or the finished product. These logs are sometimes brought from great distances up the Ucayali River, and the methods employed by the men in their transportation are of interest. Usually 50 to 60 logs are securely rafted together with small poles and vines, and in charge of four men they are started downstream. A sheltering roof of thatched palm is built on the raft as a protection from both the sun and rain, and on this raft the men cook, eat, and sleep, using dugout canoes for excursions to

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land when a house is passed, and a supply of provisions, such as bananas, yuca, and rice, becomes necessary.

As the current is not very strong, the men have very little to do, and their experience is not very exciting, in fact, it becomes monotonous except for the occasional necessity for crossing the stream or getting the raft out of one of the "remolinas," huge whirlpools, which abound in the river, one raft having been caught in one of these and whirled in a large circle of approximately one-fourth of a mile in circumference for nearly a day before the united efforts of the men, working hard with huge and rather unwieldy oars, could extricate it.

Usually several such rafts are started downstream at the same time, and when within a few hours of the mill all but one are made fast to the bank, and all the men join in bringing this one raft to the mill. The men then return in canoes and bring another raft down, until, one by one, all the rafts are anchored safely in the river port at La Puritania, no raft ever yet having been lost.

In my report of a year ago the statement was made that "at present there seems no industry in this part of Peru where such profits can be made on comparatively small investment as a planing mill run by practical lumbermen along up-to-date lines." In view of the difficulty in securing labor, and the changed conditions in general under which one must work, it is well to repeat the advice always given to inquiries received at this office from persons in the United States regarding conditions in this region, that no northerner should ever think of investing money in tropical South America without first having made a careful personal investigation of local conditions, or having received a report thereon from a source known to be absolutely worthy and reliable.

ITALY.

DEPLETION OF ITALIAN FORESTS—SALES FROM THE UNITED STATES.

Clerk Michael Siersdorfer, of the Milan consulate, in answer to many inquiries received from numerous lumber and furniture wood firms in the United States, reports as follows:

In consequence of the annual decrease of Italy's supply in all kinds of building lumber and hard furniture woods, she must import them from almost every available country. Nearly all her wood building material is imported. Stone and brick are universally used in construction, and in the larger cities the erection of frame structures is forbidden by law. There is, however, a strong demand for imported dimension lumber for the beaming of roofs and so forth, while the furniture trade calls for a constantly increasing supply of special stock. The height of buildings being legally limited to five stories, there is every disposition to use wood whenever possible instead of steel, and steel framing is entirely unknown. Building is going on very rapidly throughout the Kingdom, and the industrial outlook is such as to promise an unabated demand for timber during the next twenty years. As Italy is entirely without native forests and an immense amount of wood must be imported during this period, opportunity is suggested for the American exporter.

There is evidently no field for American hardwoods used in the manufacture of furniture, as they are deemed too expensive by the

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Italian furniture builders and can not compete with hard furniture woods, of various qualities, imported into Italy from all over the world through English, French, and German brokers. Ash is imported from the United States by the Italian Government to be made into cars for the royal navy. Small and irregular shipments of satin walnut, mahogany, ebony and cedar are also imported from the United States through English brokers, but, on account of high prices, the Italian furniture builder will substitute for them cheaper native or foreign woods wherever possible.

COMPLAINT AGAINST AMERICAN SHIPMENTS.

The Italian trade reports great dissatisfaction with recent American shipments. If this continues, according to Italian lumber experts, the trade between the United States and Italy will gradually die out and Italian builders will be compelled to attempt replacing the once satisfactory American stock with some other native or foreign wood, of better quality, cheaper price, and more readily procurable. A very strong point which led to the creation of the American trade was the large dimensions of the stock, in varied contrast to European lumber. Italian importers say that of late the American shipments have entirely lacked this distinctive quality, which was the reason for bringing them here at all.

The importations of lumber, etc., into Italy during 1906 were valued at $18,796,222. During the month of January, 1907, the imports of lumber from the United States into Italy amounted to 10,441 tons of a value of $178,847.

A HIGHLY DEVELOPED PIEDMONT INDUSTRY—TERMS OF SALE.

Consul Albert H. Michelson supplies the following from Turin:

Satin walnut and pitch pine are the two American woods most used in this consular district. Nearly all other woods are imported from Austria and the Tyrol, with fir pine first in importance. The making of furniture and fine woodwork is a highly developed and important industry in this district (Piedmont) and the very finest woods are widely used.

Terms of sale are usually thirty days after shipment to houses that accord 2 per cent off against such terms. A number of American exporters insist upon cash against documents, but there is no doubt that their business suffers thereby and that, other things being equal, the American house which offers the most favorable terms does the most business. Long credits are customary in Italy and obtain both among exporters and importers and are usually sound.

LACK OF TRANSPORTATION FACILITIES TO SICILY A DRAWBACK.

Vice-Consul Jacob Ritter writes from Catania as follows:

Hardwood is used here only in limited quantities and it would not be easy to develop an important trade in this kind of lumber. The bulk of lumber comes from Austria. It is seldom that steamers arrive from America which will load goods for this city, without transshipment at Genoa, Naples, or other places, unless the quantity amounts to 4,500 tons. This makes the freight and other charges so great for small lots as to render the importation difficult and even impossible.

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GERMANY.

BUILDING INDUSTRIES CONSUME LARGE QUANTITIES OF WOODS.

Consul-General A. M. Thackara, of Berlin, states that Germany uses large quantities of hard and fancy woods in the building and furniture industries. He continues:

For building purposes by far the greater part is used in parquet floors and but little on walls or ceilings. The cheapness of labor and high price of lumber make decorated plaster walls and ceilings most popular. In the furniture industry much of this fancy wood is used in the construction of tables, desks, and cabinets. The present source of supply of this sort of lumber is East Germany, Russia, Austria, Scandinavia, and America.

Hamburg is the great lumber market for Germany, and practically all imported lumber passes through the hands of the big dealers at that place.

This consulate-general at all times strongly recommends to American exporters the importance of all literature and correspondence to German houses being in the German language. Long time is the rule on sales. When the goods arrive in Hamburg the importer deposits his note of sixty or ninety days with a banker in payment for the goods.

AMERICAN METHODS INJURIOUS TO BUSINESS IN MAGDEBURG.

Consul Frank S. Hannah, writing from Magdeburg, states that the outlook for the importation of American lumber into his district is not very favorable on account of the previous actions of certain lumber exporters in not living up to their contracts in the past. He adds:

In a personal interview with one of the largest lumber importers in this district, he gave me information concerning a previous experience of his, as follows: A year or so ago he had occasion to place a large order for American lumber to be cut in a certain way and after certain measurements suitable for the particular job for which it was ordered. After the acceptance of the order by the American firm, conditions arose whereby they did not care to ship the lumber, but after many letters and several cables they forwarded a shipment which did not correspond in any way to the one ordered and thereby caused the importer great inconvenience and additional expense in having the shipment resawed to meet his requirements. The result of this unbusinesslike procedure on the part of the American firm has so antagonized the importer that in his present state of mind he declares his unwillingness to accept a shipment of American lumber as a gift.

It is unfortunately a fact that many American firms only seek foreign trade when the occasion is forced upon them by lack of demand in the home markets, and when orders are placed with them, should a change in conditions enable them to sell the same merchandise in the home market, they refuse to ship. This, of course, as any good business man knows, does more to injure the growth of foreign trade than anything else. Germany should be a good market for American lumber; wood is very scarce here and very expensive and consists almost entirely of pine, but it will take painstaking and

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well-directed efforts to overcome the effects produced by such proceedings as mentioned.

INLAND TRANSPORTATION TO PLAUEN ADDS TO COST OF MATERIAL.

In response to an inquiry from an Ohio lumber company concerning the imports of American woods into Plauen, Consul Carl B. Hurst says:

At present there is no stock of American woods kept here. Sometimes American pitch pine and red pine are used in this locality for flooring, and Carolina pine for doors, ceilings and furniture; white pine is used in making wood patterns, and occasionally California red wood and yellow pine are called for in the trade. The dealers here cover their needs in American woods generally from wholesalers in Hamburg.

It would be a great advantage to quote prices c. i. f. some German seaport, as the ocean freight would be a rather uncertain quantity to the dealers in this inland town desirous of importing for the first time. The distance of Plauen from the large ports would be the greatest drawback to an extensive purchase of American woods, so that the cost of transportation would have to be very carefully reckoned.

NICARAGUA.

LITTLE DEMAND FOR NEW BUILDING MATERIAL.

Consul Frederick M. Ryder, of San Juan del Norte, writes that there is little demand for manufactured lumber on the Atlantic coast of Nicaragua to-day, local trade conditions being as follows:

In the interior a limited amount is consumed, some of which is prepared there. The foreign product used is from the United States. Some years ago, when business was in a flourishing condition, the lumber trade between New Orleans and Mobile and this coast was extensive.

In Bluefields the business activity anticipated at the time the city was rebuilt has thus far failed to materialize, and as a result many of the spacious warehouses built at that time are still unoccupied, and other buildings are rapidly decaying for lack of necessary repairs. The owners have become disheartened by the continued business depression and consequent lack of income from their real estate investments.

In San Juan del Norte there has not been a building of any kind erected during the past ten years in the construction of which new material has been used. When a new building is contemplated the design is adapted for the utilization of old lumber from unoccupied houses and bodegas, even though the dimensions of the building thus planned may not exactly suit the purpose for which it may be required. Building material is both scarce and expensive in this section.

RAVAGES OF CLIMATE AND INSECTS—A NATIVE SAWMILL.

Pitch pine is the only serviceable and durable lumber for use in this locality; soft woods will not withstand the constant dampness or the ravages of ants and other insects. Shingles have not been used

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here for some years, as the rain and hot sun destroy their usefulness. Roofs which had been shingled are now covered with corrugated iron. Many of the native houses are thatched with palm leaves. These make a durable roof, but soon become infested with scorpions, tarantulas, and other insects, which abound in this section, and these can be eradicated only by burning the covering.

A sawmill has recently been erected on this coast, about 150 miles north of this port, by a syndicate which has a concession from the Government granting the exclusive right of cutting hard pine in the public domain bordering the east coast. A considerable quantity of dimension timber and 1-inch and 2-inch material has been shipped to Panama the past year for construction work in connection with the canal. Another small portable mill, which is being utilized for sawing logs in clearing the Cukra plantation, about 15 miles from Bluefields, has been furnishing some material to that port lately.

There is no lumber importer or dealer in San Juan del Norte. A limited assortment of rough material is kept in a small yard in Bluefields, and when anything is required which is not usually carried in stock it is brought from New Orleans in steamers making weekly trips between that port and Bluefields and in such quantities as may be disposed of immediately. Freight is high and lighterage expensive, so that manufactured lumber is a luxury to be obtained only by the well-to-do classes.

CANADA.

AMERICAN INVESTMENT AND DEVELOPMENT IN BRITISH COLUMBIA.

Consul Abraham E. Smith, of Victoria, reports that an American syndicate, composed of forty-two capitalists, have purchased perhaps the largest single land transaction made in the Province of British Columbia, concerning which he adds:

There was unusual interest in Victoria in this matter. A number of railroad men and wealthy investors, residents of the middle Western States, chartered a large steamer and examined timber and coal properties on the Queen Charlotte Islands in which they held options. The syndicate, which is to be known as the Moresby Island Lumber Company, closed their options on 49 square miles of timber limits in the center of Graham Island, and also of 40 square miles on Moresby Island. They also purchased outright 8,000 acres of the choicest crown grant lands in Graham Island. The investment reaches several millions of dollars, the initial payment being $250,000. As a result of the trip a sawmill, to cost $400,000, will be at once erected by the company and located on Cumshewa Inlet on Graham Island.

Various members of the party also hold options on 10 miles of semianthracite coal lands on Graham Island, but it is reported that coal experts advised against the purchase, declaring that the coal is limited in quantity and unworkable, owing to the broken formation and lack of thickness in the veins.

The northern part of Graham Island is already in possession of another American syndicate, known as the B. F. Graham Lumber Company, and embraces both timber and coal lands.

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CUT OF PINE LUMBER, RAILWAY TIES, AND PULP WOOD IN ONTARIO.

Consul E. A. Wakefield, of Orillia, sends the following report on the lumber trade of Ontario province:

The most recent estimates of the pine cut in Ontario received by the department of lands, forests, and mines give a total of 675,000,000 feet for the past year. Earlier in the season the estimates totaled 710,000,000 feet, showing a reduction in the later estimates of 35,000,000 feet, or about 5 per cent.

Information this consulate has received from various lumbermen is to the effect that not more than four-fifths of last year's cut of logs will be taken out. As many of the operators did not succeed in getting last year's logs to the sawmills the lumber cut this year should be equal to last season's. There is at present little demand for lumber, but as the stocks are in strong hands prices have not been lowered. Recently signs of improvement in the lumber market have been apparent. The original estimate of railway ties to be cut was 2,500,000. As the Canadian Northern, Grand Trunk Pacific, and Canadian Pacific railways are all obtaining ties in Ontario, the cut will probably exceed 5,000,000 ties.

The pulp wood cut is placed at 216,000 cords.

MOROCCO.

GROWING DEMAND FOR CHEAP GRADES OF LUMBER.

Consul-General Hoffman Philip, of Tangier, reports that there is at the present time a considerable and growing field in Morocco for the importation of cheap grades of American lumber. He adds:

This country supplies practically no lumber owing to the total lack of timber in the accessible districts. Building is going at an exceedingly rapid rate particularly at Tangier, and much European timber is therefore being used. Several shipments of American lumber have been sent to Tangier during the past few years and, in all but one instance, were apparently most satisfactory as regards price, quality, etc. The woods most in demand here are yellow pine and white pine. I see no reasons why American lumber exporters should not be able to compete here satisfactorily with the lumber merchants of Europe, and I feel confident that if careful attention were paid to this market by American exporters that they would soon be in a position to supply the greater part of all lumber consumed in this country. The demand for the finer class of hard woods is small as yet, but a considerable amount of hard-wood flooring is imported.

In the continued absence of any direct transportation facilities between the United States and Morocco, this matter should receive the most careful consideration of our intending exporters. With the assurance of reasonable transportation expenses the success of American lumber in this country should be assured. Former lumber shipments have been sent here in foreign sailing ships which have discharged cargo in the United States and are thus utilized for the return trip to Europe. Tangier, lying at the very entrance to the Mediterranean and but two and a half hours from the port of Gibral-

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tar is in a most accessible position for ships from any port of the world.

Spanish is the principal business language in the coast towns of Morocco; English and French are also largely used and understood; Arabic, being the language of the native Moorish and Jewish traders, is also widely spoken among resident business firms. Business generally is carried on in Morocco on a credit basis of from sixty to ninety days; the banks of this country furnish excellent references and most of the business firms are able to give European references as well. My impression is that no long credit would be required in connection with importations of lumber.

CAPE COLONY.

PREFERENCE GIVEN TO THE AMERICAN PRODUCT AT CAPE TOWN.

Consul-General Julius G. Lay, of Cape Town, advises that the several dealers in that city prefer to buy the American lumber which they require through their London or New York agents, concerning which he writes:

One reason is that in London or New York their agent is able to make the best arrangements regarding freight rates, as he is on the spot where chartering of vessels must naturally take place. Another reason is that such agent, having had experience in exporting, is able to give proper instructions as to the loading of lumber and is responsible for the state in which the lumber is shipped and in which it arrives here. It would not be so difficult to get reimbursement for any loss through improper shipping from a firm who had a representative in Cape Town or even in London as it would from a lumber company at Puget Sound.

It is stated by firms here that they have tried getting their lumber direct from lumber companies in western America but almost without exception it has resulted to the disadvantage of all concerned. The methods of grading lumber in America are not the same as those used here and the difficulty in ordering from a lumber company which is not acquainted with this trade here is to make it plain just what is required according to the methods used here.

In 1906 British South Africa imported unmanufactured wood and lumber other than teak to the amount of 7,159,277 cubic feet, of which 1,808,185 cubic feet, valued at $433,158, came from the United States.

SWITZERLAND.

OPENING OF THE RHINE INCREASES SHIPPING FACILITIES.

Replying to an inquiry from an American company regarding the sale of lumber in Switzerland, Consul George Gifford, of Basel, writes:

Oak for flooring is extensively employed, but is supplied from local sources in Switzerland and in Alsace and Baden. If pitch pine can be profitably exported from the United States to this country, it is hard to see why other valuable woods should not also find a market especially under the favorable conditions of the new water route.

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Formerly a very small quantity of hickory was imported by Swiss carriage builders, but of late I hear of no new shipments.

Very many efforts to import American goods into Switzerland fail by reason of the parties not being able to arrange terms by correspondence. Swiss importers almost always demand at least the three months credit to which they are accustomed in their dealings with other countries, while American exporters always want cash.

I mention as a matter of great importance that the Rhine has been reopened to navigation between Mannheim and Basel after a half century of interruption. Hitherto heavy goods from the lower Rhine, or foreign merchandise from Rotterdam at the mouth of that river, destined for South Germany or Switzerland, had to be transshipped at Mannheim or Strassburg and thence forwarded by rail, involving great trouble and expense.

UNITED KINGDOM.

DIRECT OCEAN SERVICE WOULD OPEN UP MARKET IN IRELAND.

Regarding the feasibility of shipping Puget Sound lumber into Ireland, Consul Henry S. Culver, of Queenstown, states that he can see no reason why it could not be successfully done provided one can get direct service to south of Ireland ports for small orders as well as cargo lots. He adds:

There is evidently some slight prejudice against the West Coast lumber on the part of contractors, since one or two complained of its rough stringy fiber, and claimed that it did not work as well as lumber from Quebec and Norway. This impression must, however, have prevailed some years since, for I have no knowledge of any recent cargoes from the west coast of North America.

All the timber and lumber imported into the south of Ireland comes from Canada, Norway, and Sweden, with a small amount from Russia. The timber from Canada comes in the shape of deals sawed into regular lengths ranging from 6 to 18 feet long, 9 inches wide and 3 inches thick. Some pitch pine is imported from Florida, and Alabama. The lumber from Norway and Sweden consists of spruce or pine flooring, and ceiling lumber tongued and grooved.

JAPAN.

CONSIDERABLE AMERICAN LUMBER USED IN FORMOSA.

Consul Julean H. Arnold, of Tamsui, writes as follows regarding the feasibility of shipping American lumber into Formosa:

As for the market in Formosa, I am able to state as the result of an interview with one of the largest dealers here that there is considerable American lumber in use in harbor and railroad works. At present this lumber comes via Japan. That which is in special demand is the Oregon pine girder measuring 25 to 30 feet in length by 1½ feet square. These are used in bridge and trestle work in railway construction and repair and for piles and girders in harbor improvements. Extensive harbor improvements in the port of Takao, South Formosa, are at present being inaugurated. Harbor improvements in Kelung, North Formosa, have been in progress for several years and

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it will require four years more to complete them. That there is considerable lumber used in these works is attested by the fact that the dealer in question stated that his contracts for supplying such materials ranged in amounts from $5,000 to $25,000 gold from time to time. The freight rate on lumber from Japan to Kelung is $1.60 per 40 cubic feet. At present this dealer pays 55 cents gold per cubic foot for lumber of the dimensions above specified.

FRANCE.

LYON'S INCREASED NEEDS OF POPLAR WOOD—GROWING OF TREES.

Writing from Lyon concerning the market for fir doors and other wood products in that section of France, Consul John C. Covert says:

Fir doors are very cheap in Lyon and throughout France generally. They are made of sapin (fir) and walnut wood. The best quality of fir boards sell at $19 to $20 per 35.31 cubic feet. This wood mostly comes from southern France, but some shipments are received from Switzerland. The best quality of walnut sells from $50 to $54 per 35.31 cubic feet, and is in great demand. Poplar is used almost entirely for the manufacture of boxes in which wines in bottles, silks, velvets, and ribbons are packed. The manufacture of these boxes is a great resource in France. There are 100 shops making boxes in Lyon. Poplar is cheap, selling at 8 to 12 cents per 35.31 cubic feet. Every landowner grows poplars along the ditches and the roadsides. Some farmers have 100,000 poplar trees and realize quite an income from their sale.

MANUFACTURED ARTICLES.

PARAGUAY.

OPPORTUNITIES FOR AMERICAN OFFICE AND HOUSEHOLD FURNITURE.

Consul Ernest L. Norton, of Asuncion, reports as follows concerning the opportunities for the sale of American office and household furniture in Paraguay:

The volume of business to be secured will not be very great, as Paraguay is not a heavy importer, but undoubtedly there is some new business to be developed, and it will pay American furniture manufacturers to investigate the market.

The local furniture factories, of which there are six, are operated on a very limited scale, and their output is confined to ordinary wooden chairs, flat-top desks, tables, bedsteads, and wardrobes. Two factories do work of a higher order in fine parlor and bedroom suites, but as modern woodworking machinery is not used, the work being done by hand, the cost of these articles is very high.

Plain wardrobes range from $25 gold and upward; with one or two mirror doors they range from $40 gold and upward. The higher-priced wardrobes are made of cedar. This is an article of furniture that our manufacturers should make special efforts to sell, not only in Paraguay, but in all South America. Very few residences in Spanish America have closets, and consequently every family, according to its means, has from one to half a dozen wardrobes in their houses.

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In household furniture the principal demand would be for extension and solid dining tables, library and parlor tables, chairs, bureaus, dressing tables, and washstands. Hall racks, sideboards, and buffets are used in a limited degree, while sofa beds, folding beds, and kitchen cabinets could not be sold at all.

Parlor furniture in use to-day is generally of Austrian bent wood, with cane seats and backs, or else of solid suites of imported furniture, heavily upholstered in leather or tapestry. The bent-wood furniture is usually bought in suites, consisting of a lounge, a rocking chair or two, and a number of straight-back chairs. The bent-wood cane-seat lounges or sofas are invariably found in all of the better-class residences, and practically in all offices.

OFFICE EQUIPMENT—SALES METHODS.

Roll-top and flat office and typewriter desks, typewriter stands, filing cabinets, office tables, bookkeepers or standing desks, and sectional bookcases, would find a market here.

Card-index cases or the filing cabinets designed for special systems of filing and handling correspondence are not in use in Paraguay, and I do not think that their introduction could be effected, except through personal explanation and demonstration.

I have been informed that American furniture may be laid down here at a cost which will give the importer a slight advantage over the product of the local factories.

Manufacturers will find it well worth while to go into detail regarding the goods offered, when soliciting trade in this country. Give all prices f. o. b. New York, all discounts, cubic weights and measurements of the goods, state the kind of stock in the furniture and whether it is thoroughly seasoned in order to prevent swelling or warping in this hot climate, the manner of packing, and the ease of setting up the articles. Full instructions, in Spanish, should accompany each consignment.

As three months, and frequently longer, elapse before replies are received to letters addressed to the United States, every effort must be made to give the prospective buyer full information in the first letter, so as to secure his order while his interest is aroused. When obliged to write for information the chances are that he will either change his mind, or place an order elsewhere before a reply is received. [The names of the four principal furniture dealers in Asuncion are placed in the files of the Bureau of Manufactures.]

ASIATIC TURKEY.

OPENING FOR HOUSE FITTINGS AT SYMRNA—HOW TO SECURE TRADE.

Consul Ernest L. Harris, of Smyrna, furnishes the following information concerning the opportunities for the introduction of lumber products into Asia Minor:

Houses in this country are generally built of stone with a framework of wood. The wooden house, so common in the United States, is entirely unknown in this section, although quite in vogue in Constantinople. This apparently would seem to preclude all opportunities for lumber products, but there is a great consumption of such fittings as door and window frames, doors and blinds, staircase parts, and

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balconies, all of which are manufactured here from foreign lumber. This lumber, a kind of pine imported from Roumania, is light, knotty, and very seldom seasoned, so that it proves unsatisfactory almost invariably. Several years ago an attempt was made to import ready-made doors and blinds from Norway. The experiment, however, did not prove a success, owing chiefly to the goods not conforming in size and style to the requirements of the local demand, and also to the little effort which was exerted to push the articles into public acceptance.

There is undoubtedly an opportunity here for the sale of fittings. The very fact of the home-made product being unsatisfactory through the use of unsuitable and not seasoned lumber makes it easier for the imported articles to secure a foothold. Several conditions must, however, be considered by the American manufacturer of lumber products who desires to start a trade in Asia Minor. He must make up his mind that the trade in all lines requires the same attention and perseverance as is demanded in the United States. If he is not willing to study intelligently the needs of this market, and to exercise patience until his product is brought up to the requirements of the trade, it is best to drop the matter, as a failure through carelessness would only tend to retard the importation of articles which are bound to meet with eventual success.

The American manufacturer must also study carefully the freight question, and ascertain if the charges from his factory to this port would not be prohibitive, and if so, if it would not be possible to so devise the construction of the goods or the mode of boxing them as to reduce to a minimum the measurements of packages.

UNITED KINGDOM.

INCREASING DEMAND IN ENGLAND FOR TURNED WARE.

From information furnished to the Canadian trade commissioner at Manchester by one of the largest houses there the demand for turned wood of great variety is increasing, not only there but throughout England, and that Canada does not contribute very largely in these articles affords him some surprise. The commissioner adds:

It is difficult to enumerate all the different kinds of turned goods required in cabinet making, as there are numerous designs of all kinds of small spindles required; the other articles that bulk largely are table legs, chair legs, sofa and dresser feet, chair stretchers and spindles, also curtain poles in various lengths and diameters, broom handles, tool handles of every description, towel rollers, towel rails, and rolling pins.

Dowels are well worth consideration, and are mostly made from birch, in diameters from one-fourth inch up to 1 inch, with one-sixteenth multiples, and should be made in 36-inch lengths, but shorter and longer lengths are marketable, but only in moderate quantities, as by far the greatest demand is for 36-inch rods. Maple and oak dowels are purchased, but the trade prefers good birch. Pill boxes are largely handled here, but at present are supplied by Sweden, Norway, and Finland, also round boxes for needles and pins.

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THE UNITED STATES SUPPLIES SHARE OF SCOTCH TRADE.

Concerning the use of wooden handles in Scotland, Consul Rufus Fleming, of Edinburgh, writes as follows:

The handles used here (chiefly hickory and ash) for various tools and implements are imported principally from the United States. Many sizes are in the market, from the longest hayfork handle to the shortest and smallest hammer handle. I am informed by local dealers in tools and hardware that the small handles (of birch, beech, or ash) for use in kitchen utensils, and chisels, screw-drivers, etc., are practically all produced in England, of native woods. The spools used by the great thread manufacturing concerns in Scotland are made in special departments of these establishments, to a large extent of birch imported from Maine.

CAPE COLONY.

AMERICAN DOORS AND WINDOWS PREDOMINATE AT PORT ELIZABETH.

At the South African city of Port Elizabeth Consul R. B. Mosher states that the United States practically controls the market in doors and has a large proportion of the trade in window frames. He adds:

Sweden is the only serious competitor in these lines, but American pine doors are preferred to Swedish ones of deal, for the Swedish doors in this climate not only contract and crack, but, as they are considerably heavier than those of pine, the difference in freight on inland shipments amounts in some cases to as much as 2 or 3 cents per door. As doors and windows are grouped with "Other manufactures of wood" in the official statistics, it is impossible to state the value of annual importations of those articles.

These goods are at present all shipped from New York through agents of the purchasers, and it is difficult to say from what portion of the States they come.

The present duty on doors and windows and all other manufactured wood except ceiling and flooring boards is 15 per cent ad valorem. On unmanufactured wood and on ceiling and flooring boards, planed, tongued, and grooved, 3 per cent ad valorem, with a rebate of 3 per cent ad valorem in both cases on goods from the United Kingdom or colonies. A new customs commission will meet in March to consider the revision of the present tariff. [A list of lumber dealers at Port Elizabeth who handle the foregoing articles is filed for reference at the Bureau of Manufactures.]

FRANCE.

UTILIZATION OF WOOD FOR DOMESTIC PURPOSES AT PARIS.

Consul-General Frank H. Mason, of Paris, advises that kindling and fuel wood are scarce and dear in Paris and generally throughout France, concerning which he writes:

The retail price of beech or hornbeam wood in Paris is from $10 to $11.19 per 2,220 pounds. Kindling wood, made generally of splinters or twigs bound into small bundles, sufficient to light a fire, are sold for $1.93 per 100, or 2 cents per bundle, which is relatively cheap, as labor in the country districts is poorly paid and the bundles

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of twigs contain the savings from the pruning of vineyards and the cutting of trees in the woods.

Kindling and firewood are sold in French cities by coal dealers. Firewood is free of duty when imported into France, but on entering Paris it is subject to the octroi or municipal duty of 50 cents per cubic meter.

WATTLE CULTURE IN NATAL.

A TROPICAL TANNING MATERIAL AND ITS EXTENDING USE.

In stating that it is not well known, even among the tanning trade in America, that the black wattle (Acacia molissima) industry in Natal is considerable, Consul Edwin S. Cunningham, of Durban, supplies the following detailed information:

The inquiry has often been made to this consulate by persons interested in its culture in this colony if no demand existed in the United States for wattle bark. That American tanners and dyers may have a knowledge of this new material some data is herewith presented concerning the present output and the possibilities of this district to provide an additional supply of this bark.

The black wattle tree was transplanted from Australia, and when first introduced into Natal there was no idea of its becoming a valuable commercial asset; but its beauty, combined with its quick growth, made it a particularly desirable tree for ornamental purposes, and with only this object in view its growth was first begun in Natal a little over a quarter of a century ago. It was in 1888 that the present Sir George M. Sutton issued a pamphlet entitled, "Wattle Bark: A Paying Industry," which gave his personal experience and pointed out for the first time that it could be converted into a valuable commercial product; and that date can be considered the commencement of the cultivation in Natal of wattle plantations. From about that period the wattle was intelligently and systematically planted and grown, until last year the acreage in wattle plantations in Natal was 80,762 acres, which will probably be considerably increased during 1907. Wattle bark has now attained to third place in the list of over-sea exports from this colony (although maize will probably supplant it in that position this year), and there is every indication of a continuous increase in the output.

GROWTH OF THE INDUSTRY.

The wattle industry gives a quick return, beginning about five years after the tree is planted. The tree needs no replanting, it being a perennial which the cutting of the first planting does not interfere with.

In 1886, 39 sample packages were sent to London, and were followed the next year by 447 packages. The encouraging and satisfactory reports received from these shipments—which continued to be made in packages until 1896—gave great confidence in the future of the business, and the plantations increased their production considerably. From the modest beginning in 1886 the output and shipments increased gradually until 1895, when 57,666 packages were shipped. The industry passed through its experimental stage during

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this period of ten years, in which was shipped a total of 168,193 packages, valued at $295,985. There were shipped in 1896, 3,378 tons; in 1898, 9,427 tons, and in 1902, 15,537 tons. In 1904 the shipments were valued at $452,151; in 1905 at $499,624, and in 1906 at $410,942. For the twelve months ended October 1, 1907, 297,410 bags of bark were exported, as against 209,998 in the corresponding period of 1905–6.

Trees are felled and stripped of their bark gradually after they are five years old. Complete felling will probably take place when the trees are ten years old. The average yield is estimated at one-half ton per acre each year.

In addition to the bark the wood is valuable, when there is a demand for this kind of timber. The cutting must take place when the sap is up, which is between January and August. The bark is then stripped from the entire tree, extending to all limbs of 2 inches in diameter. The bark in this form is dried; many plantations have large sheds in which to dry it, though sometimes, when the weather is fine, it is dried in the open. When it has become dry—which should occur after 20 or 25 days—it is prepared for market by being ground, cut, or shredded into small bits. It is then packed in bags of a muid (200 pounds) each, and is ready for export. The price varies somewhat, but the prevailing market price for first quality per ton is £7 ($34.07) f. o. b. Natal.

QUALITY OF SUPPLY—FREIGHT RATES.

To prospective buyers a word of warning is pertinent, because some farmers do not take the proper care in curing their bark, and when it reaches the European market it is dark, mildewed, and otherwise damaged; and it has been said that some unscrupulous persons have at times mixed other barks with the wattle.

The destination of the bark exported from Natal for the year 1906, in pounds, was: United Kingdom, 23,900,413; Germany, 6,218,073; Russia, 2,048,546; Austria, 580,396; Belgium, 300,119; and Mauritius, 6,992.

The quality of the wattle grown in Natal is equal to that produced anywhere, and analyses have shown it to contain as high as 40 per cent of tannin. At the present time there seems to be no serious competitor to Natal wattle bark, its cultivated and increasing supplies going far to meet the naturally grown and diminishing supplies from the original home of the tree. In the districts of Griqualand and Pondoland, in Cape Colony, cultivation of the wattle has been systematically undertaken, but the adaptability of those sections to its growth has not yet been proved. In German East Africa experimental tests have also been made, and bark from there, upon being analyzed at Hamburg, has shown 27 to 41 per cent of tannin.

The freight rate on wattle bark to New York per long ton is quoted at 37s. 6d. ($9.12), plus 10 per cent primage. Upon this a 10 per cent rebate will be paid, upon the conditions of the shipowners' contract being complied with. A ton measures 84 cubic feet when the bark is packed ready for shipment. Some samples of wattle bark are forwarded which have been prepared by a wattle-producing company at the request of an exporting firm. [These samples will be furnished to applicants by the Bureau of Manufactures.]

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GROWING THE WATTLE TREE.

PLANTATION CULTURAL METHODS AND INCREASING PRODUCTION.

Supplementary to Consul Cunningham's recent review of the wattle-bark trade in Natal, Vice-Consul Russell Hastings Millward, formerly at Durban and now transferred to Tampico, Mexico, furnishes the following description of growing this tanning material:

More than 120,000 acres have been placed under cultivation, as compared with 15,000 acres in 1897. As a tanning material wattle is most satisfactory, and contains, in a consistent form, from 35 to 40 per cent of tannin. It is used by English, French, German, and Belgian manufacturers chiefly, and in the tanning of sole leather returns a product of unusually good quality, sound and uniform, and of a pale rose shade in coloring.

There is an erroneous impression that wattle will grow in almost any kind of soil, but the fact is that discretion should be used in the selection of the ground for the purpose. A well-drained soil, and an annual rainfall of 20 to 40 inches are most essential, and the sowing of the seed and laying out of the trees require more than ordinary care. In the months of April and September the plowing is generally done, and a single-furrow plow, drawn by oxen, is used in the initial turning over of the soil.

PLANTING AND THINNING.

The seed is then scalded in boiling water and planted at once, in order to prevent its molding or premature sprouting. It was discovered, possibly in Australia, that seed treated in this way would grow more readily, and nearly all planters have adopted the method. The rows are set from 9 to 10 feet apart, and the seed at the same distance. After six weeks sprouting takes place the young trees are allowed to grow for one year, at the end of which time they are thinned out and a second lot of seed planted.

In this manner, 5 or 6 generations of trees are set in, each just one year apart; and about the time the youngest trees are ready for thinning out the first generation is sufficiently developed for felling and stripping, and the space thus created is readily filled by the other trees coming on. After the fifth or sixth planting, as the case might be, additional preparing of the soil or sowing is unnecessary, as there is always sufficient seed sown by the trees to maintain a regrowth of such abundance that it only becomes necessary to thin out the crops annually.

LOCATION OF PLANTATIONS.

Experience teaches that trees should be kept at a uniform distance apart, but there are no fixed rules, and trees can be found frequently growing in the most promiscuous manner on some of the plantations. In order to prevent destruction of the trees by the veldt fires, so common to South Africa, clearings of considerable width are cut at the edges and sometimes around the entire forest.

Wattle has not been grown with any degree of success either near the coast or in the thorn veldt, but thrives throughout a strip of land lying between 15 and 70 miles from the coast, and in the districts adjoining the foothills of the Drakensburg Mountains; the Umvoti and Pietermaritzburg counties are particularly well adapted to its

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cultivation, and the tree is also grown in some parts of Zululand with satisfactory results.

The felling and stripping is done either in May or December, as the bark then contains its highest percentage of tannin; and also because it can be dried to much better advantage during seasons in the year when there is little danger of exposure to rains or dews. Notwithstanding that most felling is done when the tree is but five or six years of age, many planters prefer to allow the tree to attain a growth of from seven to ten years; but the increased returns are not proportionate, and the delay in felling is rather a hindrance to the younger trees, which require so much more space each year as they grow, and are naturally retarded if crowded too closely.

PREPARATION FOR MARKET.

Drying sheds are used on many of the plantations, and when outside drying is too rapid to permit of the bark being easily stripped, the trees are carried inside. Thorough drying requires two weeks' time under proper climatic conditions. The bark is then chopped or ground and made ready for shipment to the local buyers, who in turn sort out the various grades and repack for exportation to the outside markets. As a rule, the bark is chopped or cut into half-inch pieces and packed in sacks of 3 bushels and weighing about 185 pounds each. Most of the product has been exported in this form, but there is now an effort being made to erect plants in the colony for the purpose of grinding the bark and manufacturing an extract suitable for the trade.

After stripping off the bark the remaining timber is sold for use in timbering mines and for various kinds of construction work; it is also extensively employed as scaffolding in the erection of buildings. The waste cuttings and faggots are sold as firewood, for which there is at all times a ready and profitable market in the colonies.

Conservative estimates place the average annual crop of wattle at from 4 to 5 tons of bark, and from 20 to 30 tons of good timber to the acre. The cost of preparing the ground and planting varies from $7.50 to $10 per acre; while the total cost of production averages about $35 per acre, including the land, fencing, taxes, and labor.

Labor is performed chiefly by coolies (Indians), who are undoubtedly the most reliable and satisfactory workers in South Africa. Wages are paid at the rate of 24 to 50 cents per day, and ordinarily a cooly will fell his trees and strip and lay out for drying a half ton of bark per day of ten hours.

PROFITABLE RETURNS—MODERN AGRICULTURAL IMPLEMENTS.

During the seven months ending July 31, 1907, there were exported from Natal 19,017 tons of wattle bark, valued at $490,485, showing an average price of $25.70 per ton for that period.

Thus it can be seen that few industries present such inducements as the wattle. Land undesirable for any other purpose may be put into wattle; little or no skill is required to grow it, and but a small amount of capital is required with which to operate. On the other hand, results are measured and certain, returns are quickly made, and large profits assured. When the tree is once started, with the exception of fire, there is practically nothing that can devastate it, and, after the first crop is taken off, no further preparation of the ground

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or sowing is required, and there need be little fear of overproduction of this popular tanning material as the demand is increasing faster than the supply, and the market is extending, not only throughout Europe but in South America, the United States, and Canada.

Manufacturers of agricultural implements should keep in touch with the agents and dealers in Natal [lists of which are on file at the Bureau of Manufactures], as the farmers and planters are rapidly discarding the primitive methods so long in vogue there, and are now adopting modern appliances in all forms of agricultural work.

BRITISH FORESTRY PROMOTION.

INVESTIGATION BY COMMISSIONS—DECLINING TIMBER SUPPLY.

A report from Consul Frank W. Mahin, at Nottingham, states that for over twenty years past the conservation of British forests has been discussed and urged by persons interested and informed on the subject. The consul reviews the movement and its relation to the supply of timber as follows:

Twenty years ago a committee was appointed by the House of Commons to consider how "our woodlands could be made more remunerative." It reported in favor of forest schools and a national Board of Forestry, and remarked on the management of crown forests and private woodlands in the United Kingdom. Another step was taken several years later, when the Board of Agriculture was authorized by Parliament to collect forestry statistics and to financially aid forestry lectures and instruction, and a small sum was accordingly granted to four educational institutions for those purposes.

A third step was taken ten years later, when a committee was appointed by the Board of Agriculture to inquire into and suggest measures to promote British forestry. This committee made a report which aroused general attention. It pointed out that there was rapidly approaching a general shortage of the timber, and that a great waste area existed in these islands which might be afforested. But this, the report said, was too vast a work for individual effort to cope with; and while not urging the Government to undertake the task it indicated that no other course was practicable.

Five years later, in 1907, another step was taken by the Government purchase of an estate in Scotland and another in Ireland for practical work in afforestation. Special instruction in forestry has been established at Oxford, Cambridge, and other schools. Several great municipalities are planting forests on the areas whence their water supplies come. It now seems that the period of tentative inquiry has ended and that of actual demonstration has begun.

LACK OF INTEREST—INCREASING IMPORTS.

The lack of general interest in the preservation of Britain's forests is attributed mainly to the universal substitution of coal for wood as fuel, and to high prices of British agricultural products, leaving but a limited percentage of the population with special reasons for giving the subject any thought.

Meantime, during the past twenty years, while those steps were being taken, the imports of foreign wood and lumber into this country were enormously increased. That of fir, oak, and teak, sawed and

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as logs, gained from 50 to 86 per cent in quantity. Of furniture woods, mahogany increased 96 and "unenumerated" 288½ per cent, while the imports of wood pulp grew by 391 per cent. The only offsets were small decreases in staves and some "unenumerated" timbers.

At the same time the area of sources of supply was steadily decreasing. A large part of the imports was formerly drawn from Germany, which now can not only export no timber, but is itself an importer. The United States is also practically closed as a source of supply. Mahogany is imported from Mexico, Cuba, and the West Indies, and oak from Russia and Japan; but as to all other varieties local dealers say that Canada and the Baltic regions are practically the only present available sources of supply for Great Britain.

Statistics show that the United Kingdom has a smaller percentage of woods to other land and a smaller area of woodland per capita of the population than any other country in Europe. It has absolutely less woodland in acres than any other European country except Belgium, Holland, Denmark, and Portugal. The statistics count Turkey, Bulgaria, Bosnia, and Herzegovina as one, with five times Britain's woodland acreage, but give all other countries separately.

RUBBER INDUSTRY.

PERU.

WORKING THE FORESTS OF THE UPPER AMAZON.

As a result of personal visits to various districts and camps within the sphere of his consulate, which embraces trans-Andean Peru, Consul Charles C. Eberhardt, of Iquitos, furnishes the following report covering the manner of securing the right to work rubber tracts, the manner in which the same are worked, and how the product is collected and prepared:

Trans-Andean Peru would still be practically unheard of in the outside world were in not for the rubber industry. As nearly as I can gather, from conversing with leading lawyers and rubber men here, the laws of Peru covering the acquirement and working of rubber tracts are still incomplete and undergoing constant amendment. At present the following steps are held to be necessary:

Selection of a tract of land is made and the location, description, etc., of the property advertised in the official organ for thirty days, that any claims against said property may be registered. At the expiration of this time, no countercharges having been made, the prefect of the department is petitioned, and he appoints a surveyor to lay out the land, furnish a plan of the entire tract, etc. This plan, together with the original description of the land, petition to the prefect, and all papers bearing upon the subject are forwarded to Lima for final action.

LOCATING AND WORKING THE RUBBER TRACTS.

If the procedures in the earlier stages have been regular in every particular, the request is rarely refused, though the difficulty of communication between Lima and the Department of Loreto at present requires that from six months to a year usually pass before final title is received, and this is only in the form of a lease for ten years,

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with the privilege of renewing at the expiration of that time, as the lands are not sold outright. No fixed cost can be given for such procedure, because it differs according to the difficulty of access to the tract for the surveyor, the bargain made by the petitioner with different parties employed, etc.

The title for ten years having been secured, the petitioner may use the land as if it were his own, and his first movement is usually to place men at work locating rubber trees. One man will open up what is called an "estrada," consisting usually of as many rubber trees as can be visited and worked by a rubber gatherer in one day, the number of trees differing as the district may be thickly or thinly studded with such trees, the rapidity with which the rubber gatherer may work, etc. For instance, near Iquitos, many estradas contain but 75 or 80 trees, in the Javary River district the average is 150, while in the Acre district it is said that some estradas contain as many as 400 trees.

For locating an "estrada" and clearing a path from tree to tree the workmen receive $25 to $37 United States currency. When this preparation has been completed, all is in readiness for the work of rubber gathering, which goes on during the dry season, from July to January, the trees being tapped in a fresh spot every other day during that time. Work can not be carried on during the entire year for several reasons: (1) By such constant tapping the tree would be worked to death in a short time; (2) during the rainy season a great portion of the land is absolutely impassable, because of inundation; (3) the rain water flowing into the cups and becoming mixed with the liquid renders it unfit for market.

The rubber worker in the more thickly settled districts is usually a poor laborer, who buys his supply of provisions, consisting chiefly of rice and beans, from his "padrone," the owner or renter of the "estradas," whom he must pay in rubber, at prices prevailing at the time of delivery. Charges for provisions are usually extremely high, and at the end of the season the laborer, though he may have delivered a large amount of rubber, is rarely out of debt to his "padrone."

GATHERING THE RUBBER.

In a tract which I recently visited there were 24 estradas, worked every alternate day during the season by 12 rubber gatherers. I accompanied one of the men in his work, and performed part of all the duties of the rubber gatherers, from the cutting or tapping of the tree, placing the cups under the wounds, gathering the liquid, to finally smoking it over a half-smothered fire. Start was made at 5 o'clock in the morning and the work of tapping the trees and placing the cups (each with a capacity of probably one-half pint), performed. The smallest trees (about 6 inches in diameter, none of smaller size being worked) carry 2 of these cups, the largest we visited (about 2 feet in diameter) carried 9, though the average was 4 or 5 cups, on trees of from 15 to 18 inches in diameter. Much of this time we waded through the standing water of the swamps almost to our waists, and it was 10 o'clock before we had visited all of the 150 trees.

As soon as the entire round was made the milk-gathering was in order. Carrying a can of about 2½ gallons capacity, we visited the same trees and emptied the cups, many of which contained less than

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a tablespoonful of liquid, and the entire day's work produced about 2 gallons. Returning to the hut in the afternoon this liquid was smoked over a half-smothered fire, being poured over a round stick of about 2 inches in diameter, which is revolved in this cloud of smoke till the liquid is formed into a hard, white substance (which later turns black) of approximately two kilos (4½ pounds) of the best grade of rubber, or "jebe fino," worth at the present market prices about $10 United States currency.

A new series of wounds is commenced every month at a point as high as the workman can conveniently reach, each subsequent wound being made a little below and in the same vein, till the bottom of the tree is reached at the end of the month. When a tree has been overworked and the milk does not flow freely, a scaffolding is constructed about the tree, which the worker mounts and inflicts the wounds farther up along the trunk. This practice, however, is very injurious to the tree, if not absolutely fatal in the end, and is forbidden on the tracts which I have visited.

DESTRUCTION OF THE RUBBER TREES.

The foregoing are the methods ordinarily employed in Peru in working the "jebe fino," the best grade of rubber, and "jebe debil," the second grade. In the working of the "caucho," the cheapest grade of rubber, the tree itself is cut down and nature's work of years undone in a few moments. Thus it is that entire regions, vast in area, where the caucho was once to be found in abundance, are now entirely denuded of such trees, except for the young ones growing up, which will in time, of course, be far enough advanced in growth to be in turn productive, but it seems that natural recuperation can never keep pace with the present rate of destruction.

In spite of the assertions of many of the "Shiringeros" (rubber gatherers) that there is no cause for alarm at the increasing number of trees dying in proportion to the number of new ones springing up, and the further admitted fact that many of the trees which have worked for twenty and thirty years are still productive, there is no denying the fact that here in Peru at least the number of rubber-producing trees is steadily growing less. Systematic planting and cultivation would be of inestimable benefit to the country and the individual.

FEDERATED MALAY STATES.

COMPARISON OF THE EXPORTS DURING THE PAST TWO YEARS.

Consul-General Thornwell Haynes, of Singapore, supplies the following statistics of the quantity of cultivated rubber exported from the Federated Malay States during the past two years:

State.	1906.	1907.	Increase.
	Pounds.	*Pounds.*	*Pounds.*
Selangor	681,040	1,198,751	517,711
Perak	149,640	255,530	105,890
Negri Sembilan	198,112	530,004	331,892
Pahang	Nil.	Nil.	Nil.
Total	1,028,792	1,984,285	955,493

During December, Perak exported 30,784 pounds, Selangor 125,242 pounds, and Negri Sembilan 68,062 pounds.

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TURKISH GUM TRAGACANTH.

SUPERIOR QUALITY OF SMYRNA ARTICLE—TRADE DIFFICULTIES.

A report from Consul Ernest L. Harris states that gum tragacanth is exported in considerable quantities from Smyrna, and that the sort particularly known as "Smyrna tragacanth" is said to be the best produced in Asia Minor. He gives the following particulars of this trade:

It is not grown, however, in the immediate vicinity of Smyrna, but comes from Karahissar, Jalowadsch, and even farther in the interior, where it all grows wild. This kind of gum consists of white, yellow, and red hardened substances, which have become congealed after oozing out of the bush, or tree, in the hot sun of a Levantine summer. The gum is secured in a similar manner as opium, by an incision in the branch. This is done in the spring and summer of each year, and the gum is usually scraped in September, when the first rains begin to fall.

During the last twenty years, the gum-tragacanth trade of Smyrna has decreased. It has been estimated that the trade has fallen from 600,000 pounds to 55,000 pounds in that length of time. One of the main reasons advanced is that the trade needs a large amount of capital, relatively speaking, to keep it going. Nowadays this product is shipped from the interior of the country to Smyrna in an unsorted condition. It is then sorted in this city into some seven different qualities in order to meet the demands of foreign markets, especially those in England, Germany, and France, where only certain grades are purchased.

Should the Smyrna merchant be unable to place all he has on hand in one season, he usually finds considerable difficulty in disposing of it at all. On the whole, the trade seems to be passing more and more to Constantinople. The exports of Smyrna tragacanth to the United States during 1907 amounted to only $15,656.

MATCHES IN NICARAGUA.

GERMANY AND SWEDEN SUPPLY THE TRADE OF THE COUNTRY.

In transmitting the following information Consul Frederick M. Ryder, of San Juan del Norte, calls the attention of the American manufacturers to the fact that nearly all the matches consumed in Nicaragua are of German and Swedish manufacture.

There is not a match of American manufacture in this district; merchants have tried in vain to place these upon the market, but consumers have condemned the product as not suitable in this climate, which has a record of 265 inches of rainfall in twelve months.

Not only must matches be especially adapted to the extremes of dampness and humidity of this climate, but they must be packed with the greatest care in order to protect them from any possible contact with such dampness. They should be wrapped in packages of 12 small boxes, and these done up in packages of a dozen each, wrapped in prepared waterproof paper, thus making a gross of the small boxes; 6 of these waterproof packages are then placed in a light tin case, which is soldered, thus making it air-tight; 6 of these

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tin cases are inclosed in a case made of good quality spruce, not more than seven-eighths of an inch in thickness, as this lumber is less liable to split and is more serviceable in every way for the purpose.

The sale of matches in the Republic being exclusively in the hands of the Government, there is only one customer for the manufacturer to deal with, and there would appear to be no reason why the American manufacturers should not have a fair share of the trade.

FORESTRY IN INDIA.

INCREASING GOVERNMENT REVENUE—SANDALWOOD CULTIVATION.

Consul-General William H. Michael, of Calcutta, reports that the British India government realized from the forests let for revenue during the past financial year the net sum of $162,632, other particulars following:

The gross revenue was $364,403. The income was 10 per cent higher than for the previous year, though it is stated that the revenue from this source is small compared with what it should be. It is stated that the young timber coming on will enable the government to greatly increase the sales of timber.

The Coorg forests are reported to have yielded 247 tons of sandalwood, worth $409,314, during the year 1906–7, the prices obtained being slightly lower than in the previous year. Measures for the artificial reproduction of sandalwood are being actively carried out in that province. In Hudgur and Banawara about 29,000 sandal seedlings were transplanted and uprooting of trees affected with the spike disease was continued.

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INDUSTRIAL WORLD.

CONDITIONS AND DEVELOPMENT.

GERMANY.

LAST YEAR AN UNUSUALLY PROSPEROUS ONE—PRESENT TRADE OUTLOOK.

Consul H. J. Dunlap, of Cologne, forwards the following review of industrial conditions in Germany:

The annual reports made to the Chamber of Commerce in the various cities of the German Empire show that 1907, with few exceptions, was an unusually prosperous year. During the last two months of the year, however, since the beginning of the financial panic in the the United States, many branches of manufacturing lessened their output, owing to the decreased demand for their finished products from the United States. This may be said to be more general among those factories engaged in making articles of luxury, such as jewelry, torchon laces, and the finer qualities of fancy goods.

Reports from such industries as coal mining, iron and steel production, woolen goods, cotton goods, electric appliances, breweries, oil mills, fertilizer factories, and the like all show increased production. The annual dividends run from 4 up to 25 per cent, and more in some branches. In few instances have the directors of works and factories omitted a dividend, and where such action has been taken it has been because of extraordinary outlays for improvements or some unusual reason. In all instances the amount set aside for reserve and contingencies has been greater than in any previous year.

Just at present both labor and manufacturing appear to be waiting on the outcome of the financial conditions in the United States. So many industries are dependent upon the market of that country to dispose of their goods that they naturally feel a hesitancy about further outlay for material or production in advance of orders.

AGRICULTURAL PRODUCTS—INTEREST AND EXCHANGE RATES.

The season was not an especially good one for agricultural products, but in spite of many drawbacks the yield of all small grains was an average one, and the same may be said of tree fruits, apples and pears being in abundance in the local markets and at prices that compare favorably with those of preceding years.

There is a scarcity of American-grown apples, owing to the high prices in the United States. Generally at this season American apples sell here at $5 to $6 a barrel, seldom more than $7, this latter being a very fancy price, above which they can not be forced. There is no price quoted for American-grown apples in Cologne at this time, because they are practically not to be had at any price.

A report for 1907 by the Rhein Joint Stock Company for the Production of Beet Sugar states that the beet crop was much smaller

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than usual and the production of sugar less. The directors of the company favored a proposition before Parliament for reducing the national tax on sugar for home consumption from 14 to 10 marks per 100 kilos ($3.33 to $2.38 per 220 pounds), but expressed small hope of the proposition becoming a law. An annual dividend of 4 per cent was declared.

Of late years, owing to the industrial expansion in this district, the rate of interest has risen from 4 to 6 per cent annually. At the present time the bank rate is 7 per cent, but I am told by bankers that loans to ordinary borrowers are seldom made for less than 10 per cent. A reason for this is always given by saying the demand for money from the United States has caused the Reichs Bank to raise its rate of interest and made money scarce. It would seem that the much-quoted German system of supplying an elastic currency in time of high interest does not have the effect, at least in this country, that its advocates imagine it would have in the United States.

Exchange between Germany and the United States has not been much disturbed, ranging from 4.20 to 4.25 marks to the dollar, while between Germany and England it has risen from 20.20 to 20.55 marks to the pound sterling ($4.8665).

THE IRON AND STEEL INDUSTRY.

At a recent meeting of the National Association of German Manufacturers of Iron and Steel it was stated that the industry had been unusually prosperous during the past year and that the output had been materially increased, caused principally by the home demand, which was created by the favorable trade conditions of the country. The business of Germany had increased immensely. In over 1,500 savings banks of the German savings bank union there are deposits of over 9,000,000,000 marks ($2,142,887,138).

Another indication of this prosperity of the industry is the increase in the income and supplementary tax. All incomes under 900 marks ($215) are tax free. In 1892 there were 2,437,886 individual taxpayers connected with the industry and in 1906 there were 4,675,199, an increase of 91.8 per cent. The taxable property increased from 5,961,927,632 marks ($1,419,506,579) to 10,725,936,684 marks ($2,553,794,448) during the same period, an increase of 79.9 per cent, and the actual tax paid in 1892 from 124,800,000 marks ($29,714,290) to 206,800,000 marks ($49,238,095) in 1906, an increase of 73.7 per cent.

During the past few months the scarcity of money and the high rate of interest have caused a lessening of new undertakings and had a weakening influence on the industry. The financial panic in the United States has had an unfavorable effect on all industrial undertakings in other lands as well and caused a hesitancy in placing orders. There is, however, no question about the iron and steel industry being as yet fully employed. The increase in pig iron during the ten months of the year has been considerable, and during October, 1907, the consumption of 1,183,676 tons equaled that in October, 1906. Should the present unfavorable conditions continue, it is within reason to expect that the iron and steel industry will shrink to some extent.

Much loss to both the iron and steel and the coal-mining industry, which is closely related, has been caused by the scarcity of cars, which

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has increased largely during the past year, and a large wage had been lost through enforced idleness.

RAILWAY PASSENGER RECEIPTS.

The Kingdom of Wurttemberg on October 1, 1906, added a fourth-class car to its train service on Government-owned railways, in which the accommodations consist merely of wooden seats arranged around the sides and, in some cases, a double row of seats through the center of the car on which the passengers sit back to back. The rate of fare charged in such cars is 2 pfennigs per kilometer (100 pfennigs= 23.8 cents; kilometer=0.62 mile).

The fourth-class cars are not run on the fast trains, and their operation has not been favorable from the Government's standpoint, the third-class cars on trains in which those of the fourth class were run being nearly deserted. A comparison of receipts and passengers was made from April 1 to September 30, 1906, and from October 1, 1906, to March 31, 1907. In the first period of the total number of passengers 0.1 per cent were first class, 5.23 second class, and 94.67 third class. In the second period 0.9 per cent of the total were first class, 4.15 second, 32.44 third, and 63.32 fourth. No less than 30.88 per cent of the third-class passengers changed to fourth. The fourth-class cars in trains carrying all classes outnumber all the others, and are patronized by many well-to-do people, not only for short trips, but for longer ones. The total passenger receipts for the first half year were, in round numbers, 10,377,000 marks, and for the second 7,772,900 marks (1 mark=23.8 cents). The season may have had something to do with this, as more people travel in summer than in winter, but the experiment shows that people do not care so much for speed and style as for cheapness.

A large share of the products of market gardens and orchards are transported to market on these fourth-class cars. The peasants take with them into the car large baskets containing their products and on arrival at their destination carry them on their heads to the market place. This saves the expense of a horse and also saves time over the transportation effected by means of a cart pulled by a dog.

INCREASE IN POPULATION.

Although a census is taken in Germany every five years, the last one being in 1905, an industrial census was taken in 1907, in which the inhabitants were also enumerated. While it will probably be some time next year before the report in its entirety is published, the number of inhabitants in the Empire has practically been determined.

The entire population amounts to 61,697,277 (in 1905, 60,641,278), an increase of 1,055,999, being an increase in one and one-half years of 1.74 to the 100, or 1.15 to the 100 population per year. Between 1900 and 1905 the yearly increase was 1.46 per 100, showing a small falling off. This may in a measure be accounted for by the fact that the regular census was taken in the winter, when many of those who perhaps seek employment in foreign countries are at home, while the industrial census was taken in the summer when many people are away from home. It was also shown that there is a marked migration from the eastern toward the western provinces of the Empire, much more observable than shown in any former census.

The census shows there were 30,453,270 males and 31,244,007 females, an increase of males from December 1, 1905, to June, 1907,

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of 568,589 and of females of 487,410. The large increase of males over females may be partially accounted for by the fact that during the summer many workmen from Russian Poland, Austrian Galicia, and Italy find employment in Germany on the farms and on public works.

The industrial census showed 13,459,520 households, an increase of 184,989 over 1905. There were 2,928,074 industrial establishments, a decrease since 1905 of 132,787.

CHINA.

EXPORTS OF PIG IRON TO UNITED STATES—INDUSTRIAL DEVELOPMENT.

In calling attention to the tendency in the Chinese Empire toward the production of commodities heretofore imported and to getting a foothold therefor in foreign markets, Consul-General Charles Denby, of Shanghai, deals at some length with the present and prospective exports of Chinese pig iron to the United States:

An occasional shipment of pig iron from China to the United States marks the beginning of a commercial movement which is worthy of attention. An American company operating a number of trans-Pacific steamships under the British flag has the agency of the Chinese furnaces for the supply of the Pacific coast. Occasional small quantities of pig iron are delivered at San Francisco by these vessels, as well as by the Pacific mail steamships.

The only shipment to the Atlantic coast of which I have been able to obtain definite knowledge is a cargo of 1,500 tons shipped on July 5, 1907, from Hankow direct to Brooklyn. The price laid down in Brooklyn is said to have been $17.50 gold per ton, including freight, $4.75 per ton from Hankow to destination.

This event is indicative of such far-reaching potentialities that it merits the attention of the iron industries of the United States. The carrying of such a commodity as pig iron 600 miles down the Yangtze River, from Hanyang to the sea, and then 14,000 miles farther, via Suez, and laying it down at New York in competition with American prices, is in fact a striking instance of modern trade development. This, of course, is only possible through the fact that ocean-going ships can reach Hanyang with 18 feet draft at almost all seasons of the year, permitting the carriage of cargoes of about 2,000 tons without transshipment, and to the fact that iron is found in great quantities in China, and produced under favorable conditions as to coal and labor.

IRON AND COAL FIELDS—AMERICAN DEMAND.

The most promising ore fields in China are situated in the vicinity of Hankow, lying in the provinces of Hunan, Hupeh, and Kiangsi. Those of Shansi and Hunan, covered by concessions to the Peking syndicate, while regarded as of almost indefinite richness, have not yet been commercially exploited on a large scale.

It is worthy of note that the Hunan and Kiangsi fields were explored by the American survey party which in 1898–99 made the preliminary examination for the line of railway from Hankow to Canton, which an American syndicate had contracted to construct.

The coke from the coal mines of Pinghsiang, in Kiangsi, near the border of Hunan, and the ore from the adjacent iron mines are used

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for the manufacture of steel at the Chinese furnaces at Hanyang, across the river from Hankow, at which are rolled the steel rails which supply the railways of China. These furnaces are under strong Chinese official management and their capacity has lately been largely increased with a view to obtaining a foothold in the markets of the United States. A table of the analyses of various Chinese coals by an engineer is forwarded herewith. [On file in the Bureau of Manufactures.]

The shipments of pig and manufactured iron from the Government iron and steel works at Hanyang for the year 1906 amounted to 41,050 tons, valued at $821,000 gold, an increase of tenfold in ten years.

American demand for ore and for pig iron has driven the furnace men to an investigation of the producing capacity of all the mineral fields of the world. Mexico, Cuba, Spain, South America, and Australia are being levied upon by the American purchaser, and if the iron of China proves as good as it is claimed to be the product may be a material factor in the supply of the American markets.

HANDMADE ARTICLES SUITABLE FOR EXTENSIVE FACTORY WORK.

The tendency in China toward the development of her manufacturing industries makes it opportune to consider the advisability for manufacturers of foreign nationality to enter into this promising field. It is evident that by reason of China's large population an immense demand would arise for an article of daily use if by modern machinery it could be manufactured at a cost even a little below the price at present paid by the consumer. In several lines it is believed that ample capital with the resulting facility for purchases on a large scale of raw material in the most favorable market, coupled with economical American methods of manufacture, skillful marketing, and intelligent advertising, will have a great advantage over the less advanced methods of the Chinese, notwithstanding the cheapness of their labor.

In several lines this has been abundantly proved. The manufacture of cigarettes by foreigners is an enormous and growing industry, rendered possible only by perfection of labor-saving machinery, careful supervision, and intelligent financing. Flour mills, paper mills, cotton mills, and rice mills also show by their successful operation the advantages of intelligence and business acumen in this field, where the insignificant market value of any unit of production seems to render it unworthy of attention.

CHINESE INDUSTRIAL PROSPECTS.

It is certain that the manufacturing development of China is destined to encroach upon hitherto untried fields. Two lines, namely shoes and ready-made clothing, seem to offer particularly favorable inducements for manufacturers of low-grade goods upon a large scale.

In both of these lines ample capital, faithful copying of Chinese fashions, foresight in purchasing raw material, skill in advertising and marketing, and a patient waiting for development would be necessary, while to the concern that could create and hold the market the returns would be immense.

With a view to ascertaining whether this idea will find a response among Americans with the disposition and means to consider the

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matter, I forward herewith three pairs of the commonest Chinese shoes [on exhibit at Bureau of Manufactures], for which there is an enormous demand. These shoes retail in the Chinese market for ninety-five cents Mexican ($1 Mexican=50 cents American currency) a pair, and sell in lots of 100 at 85 cents Mexican a pair. The same style in satin retails at $1.15 per pair and sells in lots of 100 at $1.05 per pair. These shoes are made in small shops by hand and are ordinarily sold in lots of 25 and 50, being made only in small quantities in a great number of shops.

Should this subject be found to warrant further investigation reports will be made and samples submitted of other articles of Chinese daily use.

CANADA.

OVERSUPPLY OF LABOR, LUMBER, AND COAL IN BRITISH COLUMBIA.

Consul Abraham E. Smith sends from Victoria the following review of the industrial situation in British Columbia:

The same lack of employment for labor which exists generally throughout the country is also evident on Vancouver Island. A year ago it was impossible to get men to perform the labor required; enterprises were abandoned, and work suspended. As a consequence, wages reached unprecedented figures. The lumber mills on the island also suffered from lack of labor. Thus the large mills at Chemainus and at Mosquito Harbor found difficulty in fulfilling contracts.

With the financial stringency which set in at New York in October a decided change took place. The decline in price and almost entire cessation of demand for lumber has caused the two largest lumber mills on the island, principally owned by Americans, to close down entirely, thus causing many idle men. The half dozen other mills are running only at half time, as their yards are filled with lumber for which there is no demand. It may be stated that the lumber mill at Mosquito Harbor shipped to New York by direct steamer last year 20,000,000 feet of lumber and shingles. The copper mines at Mount Sicker are also closed. The city of Victoria has endeavored to assist in giving work to laborers, by making improvements not heretofore contemplated.

COAL SUPPLY FOR SAN FRANCISCO—RAILWAY WORK.

The principal industry on Vancouver Island is coal mining. Last winter there was a shortage of coal all over the Pacific coast, and the fuel was scarce, even here in Victoria, only 40 miles from apparently inexhaustible mines. All extra men possible to secure were engaged, but miners were scarce, and those at work were discontented, being paid wages agreed to when prices were lower.

The limit of the agreement as to wages paid at Nanaimo mines, on this island by a fuel company composed almost entirely of Americans, expired on October 1 last. The wage schedule then came up for revision, and it was some weeks before the scale was adjusted satisfactorily. At that time the company had contracts for the delivery of large shipments of coal at San Francisco, and fearing the outcome of the arbitration with the men, to protect themselves,

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made arrangements for a certain amount of Australian coal to be delivered at San Francisco on the company's account. With the reaction of the last few months and the mild winter the demand for coal has fallen off. The fuel company is still bound by its Australian engagements, and the result is that the San Francisco market, which was formerly supplied by coal from Vancouver Island mines, is supplied by coal mined in the Antipodes, and on January 17, 250 men were laid off at the Nanaimo mines. The company announces that the length of time the mines will lie idle depends altogether on the revival of business in the San Francisco market.

The closing of these mines and consequent large addition to the number of idle men on this island was brought up in the local parliament on January 17, when the premier announced that the Canadian Pacific Railway, who now have over 200 men employed building an extension of the Esquimalt and Nanaimo Railway from Wellington to Alberni, via Nanoose Bay, would put an additional 500 men to work, the contract for grading 12 miles having already been let. This will relieve conditions somewhat.

ANTWERP DIAMOND INDUSTRY.

SERIOUS EFFECTS OF THE AMERICAN FINANCIAL CRISIS ON THE TRADE.

Consul-General Henry W. Diederich reports that nearly one-half of the 4,500 to 5,000 diamond cutters of Antwerp were thrown out of work through the failure of orders from the United States on account of the financial crisis. He continues as follows concerning the industry and trade:

The diamond trade of this city is one of the most important and valuable of Belgium. It is certainly the most exclusive trade in the world, and attempts are made on the part of cleavers, cutters, and polishers not to allow any outsider to become apprenticed, and in fact the decision on the part of the diamond manufacturers to introduce apprentices, owing to a lack of skilled labor, brought about a very serious strike two years ago.

About five years before this strike took place the men of the Diamond Cutters' Union succeeded in obtaining a promise from the employers that for five years no apprentices should be employed in the diamond factories and that the only new workmen should be those proposed by the union, and these were to be for the most part members of the diamond cutters' families. When this term of five years came to an end the manufacturers discovered that the trade was suffering for want of sufficient workers, and they decided to employ 500 apprentices. The strike which ensued resulted in a compromise, the employers reducing the number of apprentices to 300, and granting an increase of wages and shorter hours.

APPRENTICES—WAGES—EXCLUSIVENESS OF THE TRADE.

Apprentices are required to take a course of one year's instruction before being intrusted with regular diamond cutting. This begins by

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learning the formation of a diamond, the number of facets to be cut, and the handling of the machinery. For the latter work they are given crystals to cut. When the year's instruction is over they begin to earn a wage of from $6 to $8 per week.

The Antwerp diamond industry comprises about 40 factories and employs 4,500 to 5,000 men. Diamond cutters are paid a wage of $12 to $16 per week, cleavers $20 per week upward, while the sorters receive $6 to $10 per week; thus the average wages amount to $13 to $14 per week.

Thirty-five years ago the diamond trade was in such flourishing condition that a good cutter earned as much as from $220 to $250 per week. This remarkable state of things, however, attracted the attention of workers from all over the country; keen competition ensued, with the consequent diminishing of wages.

The secrecy of the art of cutting and polishing diamonds is maintained so completely that it is difficult to introduce this industry anywhere, save through Belgian or Dutch emigrating cutters. Thus some of the Antwerp manufacturers have emigrated to the United States, where they now supply a good part of the demand for diamonds in that country from works they have established there. A similar attempt has been made in London, where there are from 200 to 300 cutters.

The famous Cullinan diamond given to King Edward VII by the Transvaal colonial government as a birthday present can not be cut in England and will be sent to either Amsterdam or Antwerp, where it will take at the very least six months to perform the work. The fact that Antwerp is noted for the cutting of large diamonds and that Amsterdam makes a specialty of small stones indicates that the Cullinan diamond will probably come here, although nothing definite has been decided.

DIAMOND CUTTING, CLEAVING, OR SAWING.

The diamond-cutting industry is divided into three distinct heads, viz: Cleaving (which is now beginning to be called sawing, on account of a new machine recently invented for the purpose), rough cutting (known as brutage), and final cutting and polishing. The first process is that of cutting a large rough stone from the mine into smaller ones, but this is avoided as much as possible, unless the manufacturer knows that the smaller stones will realize a bigger price than would the one large one. Cleaving is also resorted to on those stones whose surface is too rough to enter upon the process of brutage. It follows therefore that the progress of cleaving is not resorted to in all cases, a majority of the stones being at once submitted to brutage.

In cleaving or sawing, the rough stone is placed in a metal receptacle with the side to be cleft downward, when a mold is placed over it into the top of which liquid aluminum is poured. This takes the shape of the mold and, after cooling, firmly secures the stone in its position, the mold being then removed. The cutting tool is a circular saw, about 4½ inches in diameter, made of soft copper, the edge of which is prepared with diamond dust and oil. The rough stone is then set with a slight pressure against the side of the saw, and remains

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in that position frequently as long as two weeks, according to the degree of resistance of the crystal. To superintend this operation the diamond cleaver has to be a man of long experience and natural skill.

Some manufacturers cut the products of cleavings into layers as thin as a heavy sheet of paper, and from these layers are cut what is known to the trade as the Antwerp rose, a specialty of this market. The circular saw, with its special apparatus for holding the diamond, was invented in the United States by a Belgian working there at the time.

ROUGH CUTTING (BRUTAGE) AND CUTTING AND POLISHING.

Rough cutting or brutage is a process which might be termed that of "diamond cut diamond." Two stones of similar size and degree or hardness are fitted into metal caps with cement. One of these caps is fitted to a rotary machine, of which the stone forms the center. The other cap is fitted to a long handle, and the cutter places this against the revolving stone, which is the first one to become smooth. Then the diamond held by the cutter is in turn put in the rotary machine, etc. The diamond dust produced by the rubbing of the stones together is carefully preserved and used with a mixture of oil on the final polishing disks as well as on the blade of the circular saw.

For final cutting and polishing the product of the brutage is set in position at the exact angle, either in a copper holder, into which it is firmly fixed by means of a clamp or held in position by a mold of lead, which has been heated for the purpose. For this work great skill is required on the part of the cutter, as many stones of one-eighth of an inch and less in diameter and weighing between 1 and 2 grains have as many as from 50 to 100 cut faces. When the stone is properly held by the clamp or mold it is pressed by the weight of the same against a revolving disk of soft steel, rotating horizontally at the rate of 3,000 revolutions per minute. The disk is covered with a film of diamond dust and olive oil. After this finishing process the diamond is marketable.

AMERICANS THE GREAT DIAMOND PURCHASERS.

Owing to the peculiar conditions of this trade, it is impossible to give correct statistics, as the custom-house at Antwerp has little control over exportations, the greater part of which are sent by post. Almost three-fourths of the world's production of diamonds are bought by the people of the United States. The declared value of these gems, covered by invoices presented at the American consulate-general at Antwerp during the year 1907, amounted to $5,230,519 for cut diamonds and $1,053,057 for rough stones. The bulk of this business was done during the first nine months of the year, as there were practically no diamonds sold to the United States in the Antwerp market during November and December, owing to the financial crisis. What an instantaneous effect financial slumps will have on the selling of luxuries may be seen from the falling off in the demand for diamonds on American account, as shown in recent statistics from New York, according to which the cut diamonds imported amounted in November to a value of only $593,000, as compared with $781,000 in October, $1,311,000 in September, $2,360,000 in

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August, and $2,674,000 in July, the uncut products showing a similarly heavy shrinkage.

While the general business depression lasts the diamond trade will also suffer, but it is remarkable that while many commodities have fallen in price, and some of them enormously so, the price of diamonds, which are mere luxuries, has remained firm. This is easily accounted for if it be true that the powerful competitors in the diamond fields of South Africa have effected an agreement for a term of years, subject to a semiannual revision, as regards the price and quantity of stones to be taken over by the diamond syndicate at London. These are now said to be restricting the output, and consequently keeping the prices as high and as firm as possible. As long as all the mines are practically owned or controlled by this combination, forming one of the most powerful monopolies in the world, there is but little prospect of a reduction of prices in the diamond market.

COAL MINING IN GERMANY.

HIGH WAGES AND OTHER CONDITIONS WHICH INCREASE FUEL PRICES.

An outline of the conditions in the coal-mining industry in the Ruhr district of Germany is furnished by Consul H. J. Dunlap, of Cologne, with added information relative to the manufacture of coke, as follows:

The coal district of the Ruhr, in west Prussia, is one of the most important and extensive in the Empire. Owing to the high prices for coal the official reports regarding wages of miners in this district for the third quarter of 1907 were awaited with considerable expectancy, owing to the connection between the wages paid for mining and the prices at which the product is sold.

To the public demands for a reduction in the price of coal the mine owners reply that it is impossible, owing to the high wages paid miners, which are still increasing; besides that the new laws regulating the payment of sick benefits and pensions to disabled miners and their families will, even if rejected by the miners, considerably increase the expense to the mine owners by many million marks. At the recent meeting of the National Miners' Congress in Berlin the leaders of the miners' unions in the Ruhr district complained of much want and misery among their members.

The year 1900 has long been cited as a period of high wages, but in 1906 the miners began a movement for higher pay. This failed during 1906–7, because all statistics, even those of the miners' associations, showed the demands of the workmen to be unjustified, and the claims of the mine owners that they were paying all the wages that the business would stand were verified.

WAGE SCALE AND ASSESSMENTS—NUMBER OF MINERS EMPLOYED.

In the following comparison of the wages per diem of coal in the Ruhr district only the three chief classes of miners are considered. The young employees, who number about 3½ per cent of the whole, are not considered in the statistics. The amount of wage given is the net sum paid after all deductions for insurance and invalid rates. Salaries paid officials, office employees, and inspectors are not in-

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cluded. The comments made in the official report follow the statement, which is as follows (mark=23.8 cents):

Classes of employees.	1900.	1905.	Third quarter, 1907.	Increase, third quarter, 1907, over—	
				1900.	1905.
	Marks.	*Marks.*	*Marks.*	*Per cent.*	*Per cent.*
Miners	5.16	4.84	6.09	18.4	25.8
Other underground workers	3.36	3.40	4.09	21.7	20.3
Adult laborers	3.32	3.42	3.90	17.5	14.0
Average	4.18	4.03	4.94	18.2	22.6

It may be seen from the table that wages have been increased about 20 per cent during the last eighteen months. No other class of workmen can show such an increase. On the other hand no one should fail to recognize the hardship of a miner's life and the danger connected therewith. In spite of all the miners of the Ruhr district maintain their supremacy among all classes of workmen. In addition to the wages, in many districts the miners purchase their coal at reduced rates in the winter, and, in some localities, are specially favored with cheaper prices for potatoes. Many thousands of them are housed in much better buildings in some of the lodging houses built by the mining companies, which are let to them on reasonable terms. Can any other class of workmen show such advantages?

The mine workers are required to pay large sums for the purpose of invalid and accident insurance. In 1905 a member of the coal miners' association of Bochum had to pay per annum, on the average, 27.15 marks for sick fund, 39.80 marks for pension fund, and 8.87 marks for invalid fund, a total of 75.82 marks ($18.04). To these funds the mine owner is required by law to contribute as much or more. Taking these facts into consideration and also the fact that the new law regulating these funds will add at least 10,000,000 marks to the expenses of the mine owners in this district, an increase in the cost of fuel to the consumer is most probable.

The number of adult employees in the Ruhr district increased during the second and third quarters of 1907 from 288,833 to 292,309. To this might be added the miners in Rhenish Prussia and the further increase in this district during October and November, and it would be safe to say that the total would amount to 310,000 men employed at the present time in the Rhenish Westphalian mining district, in which number the officials, office force, supervisors, and inspectors are not included.

SUPERIOR METHODS IN COKE MAKING—SECRET OF GERMAN SUCCESS.

Experiments under a competent expert have been made in Prussia during the past few months with western Pennsylvania coal to determine its comparative value with German coals, and the results of the comparison are said to be highly gratifying and show the superiority of the Pennsylvania article. All German coals for coking have to be washed, while such is not the case with the American coals tried here.

The experiments show that a great saving in coke making would be brought about by the utilizing of the by-products. If the new discoveries are as successful as is now anticipated, it will not be long before the manufacture of coke, instead of being done at the mines, will be brought near to the furnaces in large cities. Coke is a costly article to transport, owing to its light weight, while coal has a low freight rate. Instead of allowing the by-products of gas and

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ammonia to escape into the air, they will be used for smelting and illuminating purposes, and the small coke, of which there is an enormous quantity, can be used for fuel, as it will be near a good market, while at present it is simply thrown away as not worth the freight.

The export of aniline dyes made from coal tar from this district to the United States for the fiscal year ended June 30, 1907, was valued at $1,716,738, all of which might just as well have been made in the United States. The new system of coke making, which proposes to make use of all the by-products, will call renewed attention to this source of revenue.

The attention given by the German manufacturer to the saving of by-products and the utilization of every possible loss from his perfected article has been one of the most potent means by which he has attained such progress in securing the markets of the world. Not only cheaper labor, but great economy in every branch of manufacture has made it possible for him to compete with goods made in countries which have not only a high tariff, but one made especially to protect other manufacturers from his competition. These facts are beginning to dawn upon the minds of men who have wondered how a nation which purchases raw products from foreigners, manufactures them into merchantable articles, and sends them back to the country of origin can compete with articles made in that country, paying freight and other expenses both ways, as well as the duty.

LABOR CONDITIONS IN IRELAND.

COMPARISON OF THE COST OF LIVING FOR WORKINGMEN IN THE CITIES.

Writing from Dublin, Consul Alfred K. Moe states that a detailed report has recently been issued by the British Board of Trade dealing with working people's rents, housing, and retail prices, together with the standard rate of wages prevailing in certain occupations in the principal industrial towns of the United Kingdom. From this the consul derives the following relating to Ireland:

It is clearly set out that the report does not deal with earnings generally, but only with the standard rates of wages prevailing. Selected occupations are considered in another report which is very shortly to be made public by the board of trade. Arthur Wilson Fox, in a prefatory note, says:

The object of the present inquiry was to obtain a standard and comparison of the cost of living. Fourteen officers of the board of trade took part in the local investigations. Assistance was given by the local authorities, town clerks, borough treasurers, medical officers of health, sanitary inspectors, rate collectors, clerks to guardians, overseers, surveyors of taxes, house and estate agents, property owners, tradespeople, cooperative societies, etc. The information was checked by personal visits to working-class dwellings in each town. Rents, prices, and rates of wages in the middle zone of London were taken as standards, and index numbers calculated for each of these items in every town. For Scotland and Ireland supplementary standards were obtained by the adoption of Edinburgh and Dublin, respectively, as bases.

The dominant factor in the housing of Dublin is the prevalence of subletting. This means that with each succeeding lease the rent goes up, as the lessee usually acquires the lease as a matter of investment. A very large part of the population in Dublin is accommodated in

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tenements of a small size, that is, in one or two rooms. Of the 52,263 families in this city at the time of the 1901 census, 60 per cent had only one or two rooms, 37 per cent being housed in one room, and 23 per cent in two rooms.

While these figures resemble the Scotch, there is the difference that in Dublin the working people live in old-fashioned houses long since abandoned by their wealthy owners and now let out to exploiting agents who in turn rent them by single rooms to tenants, each house containing from five to seven families, and often more, whereas in Scotland blocks of dwelling houses or flats, constructed for the particular purpose, have one or two rooms suitable for the accommodation of the workingman and his family. The Dublin houses are in very many cases in a most unsatisfactory condition; they are old and, of course, not suited to modern needs. They are deficient in sanitary accommodations and many of them can not be kept in proper repair because of their age and dilapidated state.

RENT CHARGES AND LIVING EXPENDITURES.

London shows a remarkably high level in rents as compared with the rest of England, and in Edinburgh the rents are only slightly in advance of those in other Scotch towns. In Dublin, however, the rents are very much higher than in any other town in Ireland. Apart from Dublin, tenements of one or two stories with two, three, four, or five rooms prevail in other towns. In Dublin the working people are housed in tenement houses, such houses having been formerly private residences and occupied by the wealthier classes. The rents in Limerick, Cork, Belfast, Londonderry, and Waterford are from 31 to 47 per cent less than in Dublin.

The following shows the predominant rents paid for the various sizes of tenements per week, including all rates: One room, 2 to 3 shillings (49 to 73 cents); two rooms, 3 to 4½ shillings (73 cents to $1.10); and 4 rooms, 6 to 8 shillings ($1.46 to $1.95).

The differences, especially between Dublin and the other towns, are very marked. As regards Dublin and Belfast, the two largest cities in Ireland, the difference may to some extent be accounted for by the fact that in the former the demand for workingmen's housing accommodation is rather in excess of the supply, while in Belfast at the time of the inquiry there was a large number of workingmen's houses empty. In the case of Belfast, however, land for building purposes is cheap, while the local rates are much lower than in Dublin. In the latter city the rooms are usually large, and the accommodation per room is greater than in Belfast or in the other Irish towns.

For six Irish towns the differences in prices are not very great. In Waterford and Belfast, the lowest and highest towns, the difference is mainly due to the lower price of eggs and meat in the former town. The price of coal was practically the same in all Irish towns. In rents and prices Dublin leads the list, but Belfast and Limerick follow closely, and Cork, Londonderry, and Waterford are 12 to 16 per cent below Dublin. It is estimated that the combined expenditure on rent, food, etc., outside Dublin would be from 7 to 15 per cent less than in Dublin.

The wage building rates are higher in Belfast than in Dublin, and are lower in County Limerick, Londonderry, and Waterford than in Dublin.

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UNITED KINGDOM COMPARISONS.

Taking the mean of the rents and prices combined of all the Scotch and Irish towns, the Scotch towns are 5 per cent below London, and the Irish 13 per cent. Comparing the Scotch and Irish towns with England and Wales, and other than London, the rents and prices combined are higher in Scotland than they are in the English provinces, whereas the rents and prices combined in Ireland are on a level with Yorkshire.

In the matter of wages the mean rate in the building trade in Scotland is 14 per cent less than in London; about 2 per cent less than in the northern counties, Lancashire, the Midlands, and Wales. In Ireland the mean rate in the building trade is 20 per cent less than in London and from 5 to 11 per cent less than in the English provinces.

In the engineering trade the mean rate in Scotland is 17 per cent less than in London, and from 2 to 9 per cent less than in England and Wales, other than London. In Ireland the mean rate is only 10 per cent below London, and slightly higher than in England and Wales, other than London. These figures apply only to skilled labor.

STOCK COMPANIES IN GERMANY.

GOVERNMENT STATISTICS SHOW EXTENT OF INDUSTRIAL OPERATIONS.

The German bureau of statistics has just published a report on stock companies in Germany with figures up to the year 1907, from which Consul Carl Bailey Hurst, of Plauen, compiles the following:

It shows that the Federal authorities have for some years been arranging to keep permanent statistics of private companies in Germany. The report in question is the beginning of the investigations and furnishes the basis for consecutive statistics in this line. The results have not been reached altogether through official channels. It appears that there are 5,060 stock companies, with a nominal capital of 13,848,600,000 marks ($3,295,966,800), which includes 108 so-called Kommandit companies, with a capital of 577,510,000 marks ($137,447,380). It further embraces 27 German stock companies working in foreign countries and 11 German colonial companies. The actual paid-in capital of all the companies is not given, but is estimated at about 13,725,000,000 marks ($3,266,550,000). The reserves, loans, or mortgages are not stated.

The total number of companies is divided into 23 classes, of which may be mentioned the food and beverage industries, 904 companies, with 1,032,500,000 marks ($245,735,000) capital; banks, etc., 775 companies, with 4,427,000,000 marks ($1,053,626,000) capital; machinery and allied industries, 533 companies, with 1,624,400,000 marks ($386,607,200) capital; transportation companies, 479, with 1,517,600,000 marks ($361,188,800) capital; stone and earth industries, 357 companies, with 416,900,000 marks ($99,222,200) capital; textile industries, 342 companies, with 581,500,000 marks ($138,397,000) capital; mining, smelting, salt, and peat industries, 255 companies, with 1,311,200,000 marks ($312,065,600) capital; chemical

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industries, 140 companies, with 403,600,000 marks ($96,056,800) capital; insurance companies, 136, with 608,200,000 marks ($144,751,600 capital.

PERCENTAGE OF CAPITAL EMPLOYED.

According to the amount of capital, the banking houses include 32 per cent of the total; in machinery and allied industries the machinery manufactories have a capital of 610,000,000 marks ($145,180,000), electric plants 593,000,000 marks ($141,134,000), and electrotechnical supplies 297,000,000 marks ($70,686,000); the transportation companies include short branch roads not under State control and street railways, with 677,000,000 marks ($161,126,000) capital; shipping, with 460,000,000 marks ($109,480,000) capital; railroads, 303,000,000 marks ($72,114,000) capital; the food and beverage industries include breweries and malt houses, with 608,000,000 marks ($144,704,000) capital.

Of the total number of companies given, 488, or 9.6 per cent, work each with a capital up to 100,000 marks ($23,800); 45.9 per cent, or 2,323 companies, from 100,000 marks ($23,800) to 1,000,000 marks ($238,000) capital each; 40.4 per cent, or 2,041 companies, from 1,000,000 marks ($238,000) to 10,000,000 marks ($2,380,000); 3.9 per cent, or 199 companies, from 10,000,000 marks ($2,380,000) to 100,000,000 marks ($23,800,000); and 0.2 per cent, or 9 companies, with over 100,000,000 marks ($23,800,000) capital.

Among the latter may be mentioned the Deutsche Bank, with 200,000,000 marks ($47,600,000) capital; the Dresdener Bank and the Krupp Gun Works, each with 180,000,000 marks ($42,840,000) capital; the North German Lloyd Steamship Company, with 125,000,000 marks ($29,750,000) capital, and the Hamburg-Amerika Line, with 120,000,000 marks ($28,560,000) capital. These 9 companies united comprise 10 per cent of the entire capital of the 5,060 German stock companies. It appears that 904 of the companies given were founded in the years 1901–1906; 1,773 in 1891–1900; 1,857 in 1871–1890; 395 in 1851–1870, and 83 before 1851, of which 24 are insurance companies, beside textile industries, transportation companies, sugar refineries, banks, and coal mines. Six hundred and ninety-seven of the stock companies are situated in the Rhine country, while industrial Saxony is represented by 440 companies.

MARINE PRODUCTS.

BRITISH INDIA.

REPORTED EXHAUSTION OF THE BURMA PEARL FISHERIES.

Consul-General William H. Michael writes from Calcutta as follows in regard to the pearl fisheries of the Burmese coast:

The supply of mother-of-pearl shells from Mergui and Tavoy islands, which lie off Lower Burma, has been declining so seriously in recent years that to ascertain definitely if the pearling grounds are really becoming exhausted to such a degree as make pearling unproductive two experts were sent out by the secretary of state in the early part of last year to investigate the pearl banks of the islands and to study the life history of the Mergui pearl oysters. The experts have not yet sent in their report, but there is reported reason to

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believe the banks are becoming exhausted and are in need of considerable rest. Shells are now more difficult to obtain and are less numerous than formerly.

It was at one time proposed to close the pearling grounds, but the native pearlers were unanimous in opposing any such step. They declared that the productiveness of the banks has not appreciably diminished and the fact that the shortage in the supply obtained recently was entirely due to the class of divers having deteriorated. It is admitted that there is some truth in this argument, but all the pearling leases are owned by natives, who naturally are in favor of open banks. Formerly Australian pearlers worked there, but they left in 1900, owing to the diminution in the supply of the shell, on which they depended for their profits rather than on the pearls. The only European pearlers whose advice is now available, though they have abandoned pearling in favor of tin mining, are in favor of closing the fisheries.

Inquiries among divers themselves afford no useful information as to the habits of the pearl mollusk. They work more after custom and superstition than by observation. An application was made as far back as 1904–5 by the syndicate which leased the Ceylon pearl fisheries for the grant of a similar lease of the Mergui and Tavoy pearl fisheries and for pearling rights in a block off the coast of Tavoy, but the application was suspended pending the result of the investigation of the two experts sent out by the secretary of state of Burma.

JAPAN.

POSSIBLE USE OF VEGETABLE ISINGLASS IN PHOTOGRAPHY.

Consul-General Henry B. Miller, of Yokohama, makes the following report on the export of agar-agar (vegetable colle or isinglass) from Japan:

According to the local press it is stated that agar-agar, derived from seaweed, may possibly replace gelatin as a basis for photographic processes. It is further stated that lecturing before the Royal Photographic Society W. F. Cooper said that it has certain chemical advantages over its rivals and will in time mark a revolution in photographic emulsion making.

The agar-agar, known as colle vegetable or isinglass, is much produced in this country, and the exports of the same are as follows:

Countries.	1904.	1905.	1906.
British India	$1,852	$4,947	$10,558
British Straits Settlements	18,012	7,365	8,498
China	187,468	194,463	131,286
Korea	906	1,925	2,180
Dutch Indies	29,899	31,429	38,357
France	25,897	22,096	29,691
Germany	37,480	35,021	46,918
Great Britain	37,480	10,920	17,472
Hongkong	149,665	135,069	120,376
United States of America	15,153	12,143	35,358
Total, including exports to other countries	506,800	461,064	497,847

The total exports for eleven months ending November 30, 1907, amounted to about 2,000,000 pounds, valued at $488,715. The aver-

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age price per pound exported in 1906 was 25 cents; in 1905 22 cents, and in 1904 21 cents.

WHALE FISHERY PRODUCTS AND PRICES.

Consul George H. Scidmore, of Nagasaki, reports that the supply of whale oil in his consular district is about 11,910 imperial gallons per month, and the price therefor ranges from $4 to $5 per "to," or 3.97 imperial gallons. Limited quantities of whalebone are on the market, the price for which per picul (132.3 pounds) is as follows: Finback, $11; humpback, $4.50, and right whale, $50.

MINING INDUSTRY.

ASIATIC TURKEY.

DECREASE IN PRICE AND GREATER DECREASE IN OUTPUT OF CHROME.

The following report, covering the decadence of chrome mining, and the causes thereof, in Asia Minor, is furnished by Consul Ernest L. Harris, of Smyrna:

Chrome is one of the valuable ores of Asia Minor. The most important mines formerly worked were those of Daghardi in Broussa. The mining center which has produced and exported the most chrome in Asia Minor is the locality termed the basin of Macri, of which the port of that name was the chief place for shipment. This port is in the vilayet of Smyrna, situated on the southern coast of the peninsula.

Considerable chrome was also shipped through the port of Smyrna. The mines are located in the mountains near Sarakeui on the Aidin railway line. There are also many other chrome pits which have been left unworked on account of the difficulties connected with transportation.

FALL OF PRICES—CRUDE HANDLING OF THE ORE.

Twenty years ago chrome ore sold in this neighborhood for as much as $100 per ton. The same quantity and quality can not be sold delivered to-day f. o. b. Smyrna for more than $17 per ton, and it often only brings $15. Chrome, like antimony, has dropped so much in price that it scarcely pays to mine it, and certainly not in districts much distance from the railway. None of the mines have even been worked on a scientific basis with up-to-date machinery. As the chrome of other countries comes on the world's markets in increasing quantities, that of Turkey must necessarily decline in the face of keen competition, not on account of the quality of the ore, but from the difficulties of internal transportation, if for no other reason.

Chrome in Asia Minor is usually found on mountains from 4,000 to 5,000 feet high. It is removed from the pits to the railway station or market on the backs of donkeys and camels. The surer-footed donkeys are used in the higher altitudes, and the camels for the plains. This method usually involves two or three transshipments between the point of origin and the port of Smyrna. It usually takes one donkey a week to carry 400 pounds of chrome ore from the pits on the mountain tops to the camel stations below. It then takes five camels one day to transport a ton of chrome over a distance of 15 miles. The last shipments of chrome made from Smyrna were 1,500 tons in 1906.

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The largest firm which ever handled chrome at Smyrna has returned all its mines to the Turkish Government, as the annual tax upon the ownership of these mines amounted to more than they could be worked for at a profit.

The New Caledonia chrome mines are worked by convict labor, and the mineral can therefore be produced at prices which practically preclude competition.

VENEZUELA.

GOVERNMENT CONCESSION FOR EXPORTATION OF MAGNESITE.

Consul Thomas P. Moffat, of La Guaira, reports a recent concession by the Venezuelan Government, granting the exclusive privilege, for a period of twenty-five years, of exporting magnesite found on private lands in the island of Margarita. The Government is to receive 1 bolivar (19.3 cents) on each ton exported. It is estimated that the annual output will be from 12,000 to 15,000 tons. Work has been commenced on several properties, and shipments will probably be made very soon. A private contract is said to have been made between the grantee and an American company for the entire quantity exported.

LEATHER GOODS.

BELGIUM.

PROSPEROUS CONDITION OF BOOT AND SHOE INDUSTRY.

Consul W. P. Atwell, of Ghent, states that the boot and shoe industry of Belgium has in late years developed to important proportions. He continues:

According to published statistics, there are more than 200 factories in the country, all well-equipped, and giving employment to more than 200,000 hands. Several of the more important factories can turn out as many as 3,000 pairs of shoes a week. At this rate of production it is easy to understand that the supply considerably exceeds the demand. For this reason attempts have recently been made to export the Belgian made shoe, which is of an inferior quality and sells at a low price. Efforts have been principally directed toward England, where, after much trouble and sharp competition, some important orders have been registered. To further the export trade the Belgian shoe factories have now formed a trust, known as the Union of Manufacturers of Shoes for Export Trade. A few months ago the boot and shoe industry and, in general, all industries connected with the manufacture of leather were greatly disturbed by a sudden and unaccounted for increase in the price of leather.

Notwithstanding the low price of the native article, the American made shoe is becoming more and more popular, particularly with the better class of people. Belgian manufacturers, noting the increasing demand for American styles, are now imitating the American shoe.

There would appear to be a good market in this district for American made rubbers. The article sold here is heavy, awkward in form, and of a very inferior quality, and sells at a high price as compared with the American made rubber.

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BRITISH INDIA.

GOVERNMENT EFFORTS TO ENCOURAGE THE CHROME TANNING INDUSTRY.

The Administration Blue Book, referring to the chrome tanning industry for 1906–7 in the Madras Presidency, is quoted by Consul-General William H. Michael, of Calcutta, as follows:

The government factory is reported to have continued to do good work, financial results have improved, custom has been extended to all parts of India, but though general satisfaction was given in the hides turned out, the qualities are stated to have been somewhat uneven. This variation is said to be largely due to the fact that all the hides worked at the government factory were limed and unhaired in outside tanneries, and to obviate this in future the government has provided funds for the necessary plant, which will be erected at Perambur. On the other hand, the record of private enterprise in connection with the industry is said to have been not altogether satisfactory, the Madras Chrome Leather Industry, Limited, with a nominal capital of $33,000, having ceased to do business. Elsewhere progress in the industry is indicated by the opening of a chrome leather boot shop in Madras, which is doing a considerable business, and the starting of a small factory at Suramangalam, in which the local tanners are interested. The Madras School of Arts is also aiding the development of the industry by the opening of a department for the sale of chrome leather manufactures.

The consul-general says that in his judgment the chrome leather manufactured in India does not compare with the American-made leather either for softness, flexibility, or finish.

GERMAN PUBLIC SERVANTS.

RAILWAY, POST, AND TELEGRAPH EMPLOYEES IN THE EMPIRE.

Consul Frank S. Hannah says that according to statistics recently published in a Magdeburg paper the number of employees in the service of railway, post, and telegraph in Germany has now reached the unprecedented number of one million. The consul further summarizes:

In the year 1906 the entire number of employees, including the apprentices and women engaged in the service of the railroads, was 648,437. In the postal service at the end of the same year 296,738 persons were employed. In these figures for the post are included all employees of the telegraph and telephone service. This gives a total number of employees at the end of 1906 of 945,175, and a proportionate increase since then would make the present number one million. Germany, with its approximate population of 63,000,000 people has, therefore, for every 60 inhabitants, about 1 employee of the railroad or post.

The railroad employees received during the year 1906 970,000,000 marks ($230,860,000) and for the year 1907, for which the figures have not yet been published, the amount thus expended is estimated at 1,000,000,000 marks ($238,000,000). Similar statistics for the post and telegraph are not published, but, taking into consideration the number of persons employed, this amount can not be less than 500,000,000 marks ($119,000,000). This makes a grand total of wages paid to railroad and postal employees of 500,000,000 marks ($357,000,000).

The German post-office department handles the largest amount of mail matter and has the largest number of employees of any European nation. The total number of pieces of mail handled during

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the year 1906 in Germany was nearly 8,000,000,000 pieces, while in Great Britain and Ireland, which occupy the second position, the number did not quite reach 5,000,000,000. This large amount of business and greater number of employees may be partly explained not only by the excellence of the postal system in general, but by its almost universal use by the people.

CEMENT TRADE.

JAPAN.

INCREASED NATIVE PRODUCTION REDUCES IMPORTATIONS.

The following newspaper item relating to the cement industry in Japan is furnished by Consul-General Henry B. Miller, of Yokohama:

The total monthly output of cement in Japan, which was not more than 600,000 barrels two or three years ago, is believed to have increased to about 1,300,000 barrels, the producing capacity of every cement company being increased by 50 per cent. The industry was encouraged by the recent activity of water-power electric works, water works, and other engineering works. Now the import of cement is materially checked. By the financial depression of late business activity has died away, however, and the cement companies newly promoted have delayed the construction of factories, while the older companies have reduced output and are now watching the progress of events.

AUSTRALIA.

IMPORTS AND SELLING PRICE—ENLARGING LOCAL FACTORIES.

In answer to inquiries Consul Orlando H. Baker, of Sydney, New South Wales, furnishes the following information:

The imports of cement into Australia in 1906 amounted to 88,919,936 pounds, imported from the following countries: Germany, 50,441,990 pounds; United Kingdom, 34,648,653 pounds; United States, 257,152 pounds; other countries, 3,572,141 pounds. The wholesale price at Sydney varies, but is at present about $2.50 per cask of 375 pounds. The cement works in New South Wales produce about 1,000 tons per week, but they will soon be enlarged.

PIG IRON PRODUCTION.

COMPARISON OF UNITED STATES RETURNS FOR FOUR YEARS.

James M. Swank, general manager of the American Iron and Steel Association, gives the pig-iron production in the United States in 1907 as 25,781,361 gross tons, or somewhat in excess of preliminary estimates. The following table gives the half yearly production for the past four years in gross tons:

	1904.	1905.	1906.	1907.
First half	8,173,438	11,163,175	12,582,250	13,473,044
Second half	8,323,595	11,829,205	12,724,941	12,308,317
Total	16,497,033	22,992,380	25,307,191	25,781,361

The production in the first half of 1907 was much the largest for any six months in the history of the country, and promises to stand as a record for some time.

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NICARAGUAN PAPER CONCESSION.

EXCLUSIVE RIGHT TO MANUFACTURE GRANTED BY GOVERNMENT.

Consul Frederick M. Ryder, of San Juan del Norte, advises that the president of Nicaragua has granted, and the National Legislative Assembly has approved, a concession for the manufacture of paper, the details being as follows:

Juan Carlos Serrano has been given the exclusive right to manufacture paper of all kinds from such raw materials as he may acquire in the Republic; in addition to the product of the Government forests, the contract also monopolizes the manufacture of paper from cotton, rags, straw, sawdust, barks, and all other materials, covering a period of eight years from December 18, 1907, the date Congress approved of the act.

Mr. Serrano is obliged to construct a paper mill, at some convenient location, within eighteen months from above date; free entry is granted for all material used in construction of the plant, for the machinery equipment, chemicals, and everything necessary for the manufacture of paper and maintenance of the enterprise. The capacity of the mill, as well as the modern character of its machinery, must be equal to any demands which may be made upon it for the requirements of the Republic.

In return for the privileges granted, and that "the people may derive benefit from the establishment of the new enterprise," it is stipulated in the contract that "the concessionarie is obliged to instruct ten young men (whom the Government shall designate) in the art of modern paper making." The product is to be sold as low as possible, and the Government is to be furnished its supply of paper at a discount of 20 per cent from the established price.

The concession, including all of its rights and privileges, may be transferred to an individual or syndicate who can assure the Government of its ability to carry out the provisions of the contract.

JAPANESE WATER POWER.

LARGE ELECTRICAL DEVELOPMENT POSSIBILITIES—PRACTICAL NEED.

Consul-General Henry B. Miller, of Yokohama, invites attention to the following report of an electrical expert on the possibilities of development of electrical power in Japan:

In the case of one power site on the Tashiragawa the construction of a tunnel 3½ miles long would, it is stated, secure about 66,000 horsepower, and at another power site by means of about 10 miles of tunnel and a certain amount of open canal construction 150,000 horsepower could, it is reported, be secured. In the first instance there is a good reservoir site for storage, while in the second instance advantage would be taken of natural lakes. These sites, and others which have been surveyed, are in the Fujiyama district. Additional sources of power are near Nikko, where Lake Chuzenj would form the large reservoir, and where with 4 miles of tunneling a fall of 2,000 feet could be secured; also in the Lake Inawashiro district, where the construction of 4 miles of tunneling would provide upward of 50,000 horsepower. An inspection of the principal sites and a study of the rainfall statistics over many years point to the probability of the initial plants giving, even during periods of drought, 300,000 horsepower.

A favorable feature of the scheme is that the power sites provisionally selected are located within a comparatively short distance of Tokyo, where at the

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outset the bulk of the power would be taken. Between the capital and the sites referred to there is a minimum transmission distance of 80 miles and a maximum of 150 miles. It is estimated that the present requirements of Tokyo represent 48,000 horsepower, and that plants which will call for an additional 20,000 horsepower are in process of erection. These figures do not, however, include the electric road from Tokyo to Yokohama, or the elevated road which is being constructed by the Government in Tokyo. One of the chief power sites is within 135 miles of the old capital, Kyoto, and Osaka, the Manchester of Japan, is only 160 miles distant. It is believed with the growth of the interurban tramway systems in Japan there would be an immense field for cheap water power. Owing to the high price of coal the cost of steam power is high, and the utilization of water power should prove an important factor in the industrial development of Japan.

LONDON'S ELECTRICITY.

AMOUNT USED AND COST TO CONSUMER DURING LAST YEAR.

Consul-General Robert J. Wynne reports that a return was issued by the British Board of Trade recently showing the consumption of and prices charged for electricity by the London authorities and companies whose undertakings lie within the Metropolitan Police District, from which he secures the following facts:

A total of 87,000,000 units was delivered for all purposes by local authorities last year, and 213,000,000 by companies. The prices charged per unit compare thus:

	Local authorities.	Companies.
	Cents.	*Cents.*
Power and heating	2.60	2.90
Private lighting	7.34	7.66
Public lighting	3.70	3.24
Average receipts for all purposes	5.126	6.06

It will be seen that the average of the municipal electricity is less than that supplied by private companies, but there is nothing in the report to show the financial stability of the various undertakings. West Ham enjoys the cheapest electricity in the whole district, the local council charging 1.9 cents for power and heating, 5.4 cents for private lighting, and 2.78 cents for public lighting, the average price received by the council per unit, taking into account the quantity delivered in the different classes, being 2.96 cents.

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CROPS AND FOODSTUFFS.

OLIVE CULTURE.

GREECE.

UNUSUALLY GOOD YIELD IN PELOPONNESUS AND CORFU.

Consul Edward I. Nathan, of Patras, reports that the olive crop for the season 1907–8 in the Peloponnesus, Greece, is unusually large, especially in comparison with that of the previous year, which was almost a total failure. The consul gives the following trade and cultural information:

The former season's nonproductiveness was due to the excessive rains and hail storms then prevailing, while this season the favorable weather conditions served to increase the size and improve the quality of the crop. In the province of Achaia, in the northwest of the Peloponnesus, it is estimated that the crop will aggregate 300,000 to 350,000 okes (about 850,000 pounds, 1 oke being 2.8 pounds). The previous year's crop in the same province was only 80,000 okes. In the district of Pharron, in the north of the Peloponnesus, this crop is estimated at 100,000 okes (282,685 pounds), an increase of one-third. In the southern provinces of Messinia and Laconia the crops are reported to be unusually large and the olives of a superior quality, due in a great measure to generous rains after a prolonged period of dryness. The yield of olive oil from the latter districts alone is estimated at over 5,000,000 kilos (about 5,000 tons.).

While there is a large and increasing quantity of olive oil exported to the United States, the exportation of olives is not as great as might be expected. In fact the entire olive crop available for export is very small, owing to the destruction of the olive trees in 1900 to make room for the cultivation of currants, then at a premium, because of the needs of France, owing to the failure of the latter's grape crop.

BEST QUALITY—CORFU'S PRODUCTION.

The olives exported from the Peloponnesus are black in color and are sent pickled in brine. The finest variety is grown to the north of the Peloponnesus, on the plain about Amphissa, on the north coast of the Gulf of Corinth. About 90 per cent of the crop of this district is exported to the United States, largely through Patras, the chief port of the Peloponnesus. Kalamata, in the southwestern part, is another important place for export.

Corfu, a large island lying northwest of Greece, also exports considerable olive oil, mostly to Russia, England, and France. Only about 100 tuns of 252 gallons each were shipped to the United States from Corfu during 1907, while during 1906 some 300 tuns had that destination. The latter were, however, what remained of the previous year's abundant crop.

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The crop in Corfu for the season 1907–8 is very large and is expected, according to information sent from there by American Consular Agent C. E. Hancock, to yield about 14,000 to 15,000 tuns of olive oil, ranking second only to the crop of 1905, the largest known crop for thirty years. The crop for 1906 was practically a failure, producing only about 150 tuns of oil.

BENEFIT OF A SNOWFALL.

Previous to 1905 there had been a succession of very poor crops, and it was thought almost generally that a good crop would never again be seen and that the trees had become hopelessly diseased, but a comparatively heavy fall of snow in the early part of 1905 with a hard frost following seems to have killed the germ of the fly that had been so increasingly destructive to the fruit in the previous fifteen years. This rendered possible the phenomenal crop of the season 1905–6.

In Corfu, owing to the great age and large size of the trees, the olives are allowed to ripen and fall to the ground and then gathered. In the Peloponnesus, on the other hand, the harvesting method usually employed is to beat the trees with long wooden poles, the severe shaking causing the olives to fall to the ground. It is calculated that the yield is only one-fifth to one-third of that when the olives are allowed to fall to the ground. The quality of the oil resulting from the former method is, however, somewhat superior.

The harvest periods in the Peloponnesus and in Corfu are also different. In the former the beating commences early in November and ends with the close of the year. In Corfu olives remain on the trees until fully ripened, making the harvest season much later. The better the season the longer the olives remain on the trees, and it is quite usual for all not to have fallen before May and even June. During a good season like the present the falling will become general about the month of May.

The prices brought by olives and olive oil this season are about 20 per cent higher than those of last year, a natural result of the larger supply. Olive oil is selling at from 80 to 95 francs ($15.44 to $18.34) for 220.5 pounds, or from 7¼ to 8½ cents per pound, according to quality.

SYRIA.

YIELD IN PALESTINE DOES NOT KEEP PACE WITH LOCAL DEMAND.

The following report on the decadence of the olive groves of the Jerusalem district and the present condition of the industry is furnished by Acting Consul Thomas R. Wallace:

The olive is one of the principal products of this region of Syria, and upon it the native people chiefly depend. Every village community has its olive grove, and in many places small groves are seen far from dwellings, the property of the villagers, who carefully watch and guard them during the picking season, but otherwise give them little, if any, attention.

The amount of land in cultivation in this part of Palestine is small as compared with the whole. The farmers live in villages, usually located where springs exist or water can be obtained from wells. The conditions forced upon them, both by law and custom, seem to have

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discouraged individual initiative, and, instead of advance and progress, stagnation exists, and all measures of improvement are neglected. The result is a constant decrease in the production of olives, old trees that die or those cut down being replaced in very small part and those that stand to-day date back for ages; indeed, the fruit is still called the "Roman olive," and I am assured that many of the groves have well-authenticated records of existence covering a period of more than a thousand years. A few new groves have been planted by Jewish colonies in recent years and a few young trees are seen around native villages, but these form a small part compared with those destroyed.

GROWTH AND PRODUCTION.

The olive tree is indigenous and constitutes the greatest number of trees growing in the mountain district, the thin layer of soil upon the bed rock precluding other trees, although some of the largest and most productive orchards in the district are located on the plains along the sea. The climate is an ideal one for their production and the trees are prolific bearers, when well cared for, and each year produce an abundant crop.

The greater part of the year's product is used by the natives as a food in different forms, the remainder being used for illumination and manufacturing purposes. The oil production in the district, of about 3,000 tons, is used locally in making soap, which is exported to Egypt and Anatolia. There is but little, if any, oil sent out of the country at the present time. Formerly a small quantity was exported, but the decreased production and increased consumption for manufacturing purposes use up all the excess.

The native or common variety is most in favor, although a few of the large or European are used for pickling, especially when prepared for sale, but the small fruit, which is the common kind, is preferred for pickling and for oil; it is claimed they are much richer in oil, more nutritious as food, and of finer flavor. The pickling season commences about October 1, and it is the custom in the villages to do all the pickling together, as the trees are in one grove, of which each family owns a portion, and by being on the ground at the same time stealing is prevented, and as each family picks its own fruit trouble is averted. The season covers considerable time, and as the degree of ripeness fixes the use to which the fruit will be put the harvest is not hurried, as it otherwise would be. The children and the women usually do the work of picking. The women when paid wages receive about 20 cents and the children about 16 cents per day.

YIELD OF OIL.

The farmers say that a fair average of oil per ton of fruit is one-fourth, but it varies much in different qualities of soil and the care given the trees. The crop upon light-colored soils yields about one-sixth in oil, while upon deep-red soils it often reaches one-third, but the average yield is estimated at one-fourth. Some exceptionally good olive trees produce as much as 240 pounds of fruit, which yield 60 to 80 pounds of oil.

Attention has been called to a small olive grove halfway to Bethlehem, which some years ago came into the hands of a Greek, who had the berries carefully picked, the soil enriched, and proper attention given to the trees, which doubled the yield the first year.

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The price received for oil varies greatly both in different years and in different places and ranges from $116 to $140 per ton delivered in a market town or village. The waste material or pumice, which is left after the olives are pressed, is used for fuel. A few new mills have been introduced recently, but the machinery in general use for the extraction of the oil is the same as was used ages ago.

SPAIN.

RESOLUTIONS OF GROWERS TO IMPROVE TRADE CONDITIONS.

Consul-General Benjamin H. Ridgely, of Barcelona, advises that at a recent national convention of Spanish olive crushers certain steps were taken which will be read with interest by olive growers all over the world. He adds:

Spain is the second largest producer of olives in the world, and the industry is handled here with great interest and care. About 3,500,000 acres of land are planted in olive trees, from which, in a good average year, about 1,400,000 tons of olives are produced and about 69,000,000 gallons of oil. Thus the united action of the olive crushers of Spain must have considerable significance. At their convention referred to they passed resolutions in which the following measures were decided upon:

First, to obtain a modification of the existing tariff, so that the duty on oil seeds shall be in proportion to that on the oils obtained from such seeds.

Second, to require all seed oils to be denaturized on import into Spain, and upon leaving the factories when crushed in this country; peanut oil of Spanish manufacture alone being excepted, but not the peanut oil imported from Madagascar.

Third, prohibition and severe punishment of any adulteration of olive oil with seed oils, whether intended for domestic consumption or for export.

Fourth, reduction and unification of railroad freight rates.

Fifth, establishment of a maximum rate of freight for olive oil and olives by shipping companies.

Sixth, export bounties to be granted on olive oil.

Seventh, schools under the management of experts for teaching the proper way to prune olive trees, to be founded in all olive-growing districts.

Eighth, the necessity for an act to be passed obliging all growers to adopt the most approved means for combating and preventing the spread of diseases of the trees and for the enforcement of such a law.

Ninth, the exemption from taxation of new plantations of olives to be prolonged to thirty years.

Tenth, olive oil to be exempt from "octroi" dues on entry into the towns.

Eleventh, that a study be made of the existing diseases of the olive tree in infested districts, with a view to finding the most efficient remedy.

Twelfth, that a careful study be made to ascertain which varieties of the olive tree give the largest yield and the finest quality and which are best adapted to the different soil and climatic conditions of the various oil-growing districts.

Thirteenth, that a national exposition of oils, wines, cereals, and other products of Spanish agriculture should be held.

Fourteenth, that "elayotecnicas" stations be established in Argentina, Mexico, Uruguay, Chile, New York, and Japan.

Fifteenth, that some means be adopted for protecting the olive groves.

Sixteenth, that uniform weights and measures be used for olives and oil throughout the country; and finally, that for the purpose of furthering the interests of all olive growers and crushers a central agency be established at Madrid.

Considerable discussion was aroused over the question of adulteration; for, while some claimed that without such adulteration exportation would be impossible, others insisted that only their absolute purity would insure the sale of Spanish olive oils in foreign markets.

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CHILE.

CLIMATE ADAPTED TO OLIVE GROWING—OPENING FOR AN OIL FACTORY.

Consul Alfred A. Winslow, reporting from Valparaiso, says that the olive is cultivated in Chile very successfully, the climate being exceptionally adapted to its growth. There are at present some fine olive orchards in Chile, and the local demand is almost entirely supplied by the home production, as the importation of olives for 1905 only amounted to $6,935 United States currency. That is not the situation as to olive oil, as this is all imported, the receipts in 1906 amounting to $646,285. This suggests a fine opening for an olive-oil factory in Chile. The local olive is said to be exceptionally rich and grows to a large size.

FRUIT TRADE.

GREECE.

INCREASED SHIPMENTS OF CURRANTS—EXPORTS TO UNITED STATES.

Vice-Consul Haworth J. Woodley, of Patras, has prepared the following review of the Greek currant crop and trade:

The outstanding feature of the currant season of 1907 has been the large volume of business transacted during the latter half of August and practically throughout the entire months of September and October. That buyers were induced to respond to such an unusual extent may be attributed to the very moderate level of the opening quotations and a market showing almost daily increasing firmness owing to the reduced crop estimates during the critical period of cutting and gathering the currants.

Heavy rains in most of the producing districts not only reduced the weight of the crop, but seriously deteriorated the quality of the various growths, provincial grades in particular suffering most damage.

Fortunately most of the fruit so affected was ultimately secured in merchantable condition, but the standard of quality was necessarily lowered and has not been entirely satisfactory. The finer grades suffered somewhat less severely and Zante fruit escaped the ruin altogether, being of excellent quality and condition. Shippers have, however, done their utmost under the unfavorable circumstances and, on the whole, few complaints have been pressed to the limit of arbitration.

HEAVY FORWARD BUYING.

Owing to the small stocks carried over into the new season, a ready response was accorded to the opening quotations, which started on a level considerably lower than prices at which shipments could eventually be effected.

The late harvest and consequent limited supplies of currants available at the commencement of the season, together with the unusually heavy requirements for September and October shipments, inflated spot prices, and deliveries generally were only effected at heavy losses to local shippers, who, nevertheless in most cases, fulfilled their engagements. As the damage to the crop became more generally known, prices continued their upward course until the market reached its

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highest point early in October, the quotations for provincial currants then being about $5 per hundredweight, cost and freight, New York.

From this period prices receded somewhat, though the difference was mainly due to the reduced export tax, which, by arrangement, was made payable in cash at the fixed rate of 115 drachmas per 1,000 Venetian pounds ($20 per 1,050 pounds). This was done, however, only after 66,000 tons had already been exported. Owing to the active demand and heavy shipments, this quantity was reached earlier than had originally been anticipated, while a rise in the rate of exchange also accentuated the reduction in forward quotations, so that these two factors practically accounted for the reduced quotations.

AVAILABLE SUPPLIES INSUFFICIENT.

The crop is officially estimated at 141,000 tons, as against 132,000 tons last season, leaving about 118,000 tons available for export after the full retention duty in kind is deducted. In face of the increased consumption and the fact that a large proportion of the fruit remaining in Greece is of poor quality, for which reason its export is prohibited by the Greek Government, the available supplies of merchantable fruit are generally considered to be inadequate to meet the world demand.

The increased exports this season have been general to all countries consuming currants, and the total shipments for 1907 are 766 tons in excess of those for the same period of 1906. For the season 1907-8 to December 31, the exports amounted to 113,466 tons gross, against 97,700 tons gross for the previous year.

The favorable statistical position fully warrants the continued firmness of holders, and a comparison of the stock at present available in Greece with the quantity exported during the remainder of the season of the previous year reveals a shortage of about 8,000 tons to meet the estimated universal requirements. The officially estimated crop of 1907 is 141,000 net tons, of which there were exported to December 31, 1907, 98,000, and absorbed by retention duty 23,000, thus leaving stocks remaining in Greece at 20,000 net tons.

A feature of this season has been the heavy shipments to the United States, the 15,194 gross tons going forward up to December 31 being 4,184 tons in excess of the previous season.

SPAIN.

MARKET DEPRESSION IN THE VALENCIA ORANGE INDUSTRY.

Writing from Valencia, January 24, Consul Charles S. Winans, makes the following report on the present difficulties experienced by the Spanish orange-growing industry:

Agricultural depression, especially in fruit growing, continues to increase in this district. The crisis first developed in the wine trade, in which it reached such an acute stage recently that some important wine growers, unable to obtain even the very low price of 6 cents a gallon for their product, rolled their wine casks on to the public highways that passers-by might drink gratuitously.

Now orange growers and exporters have been overtaken by disaster so crushing and complete that foreign markets on which they de-

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pend almost exclusively for the consumption of the Valencia crop have all collapsed. Production has outgrown the requirements of available markets abroad, while home markets, in the interior and northwest coast of Spain, are at present inaccessible to Valencia fruit growers, owing to deficient transportation facilities and high freight rates both by sea and land. In the first two months of the present season—November and December—1,600,000 cases of oranges were exported, or about 240,000,000 pounds, and three-fourths of the crop still remains on the trees.

Farmers have been forced to sell their oranges to packers as low as 10 cents an arroba of 25 pounds, and exporters have been receiving average prices of $1.25 per case of 150 pounds of fruit, which, after deducting packing expenses, freight. and sale charges, leaves practically nothing for the oranges.

CONTRIBUTING CAUSES OF THE REVERSE.

Among the causes assigned for the threatened ruin of the Valencia orange trade, with exports valued at $12,000,000, appear to be lack of intelligent organization of growers and packers for the distribution of exports in proportion to the consuming capacity of markets, excessive production, and deterioration of quality of fruit, and dependence of farmers and merchants on foreign capital.

British fruit brokers and merchants finance the greater part of the Valencia fruit trade, advancing one-half to two-thirds the prospective value of consignments, their commission profits being increased by excessive shipments. Oranges this season colored eight days earlier than usual, the shipments in the first two weeks of November exceeding by 260,000 cases the totals exported up to the same date last season. At that early date British and German markets, still well supplied with apples, Almeria grapes, and other autumn fruits, were not prepared for such heavy imports of oranges, and have not yet recovered from the collapse at the very opening of the season.

Moreover, Valencia orange growers, in their anxiety in recent years to increase production by intensive cultivation and high fertilization have succeeded to some extent, at the expense of the quality, flavor, and keeping condition of the fruit, which has acquired a coarser skin and texture and more acidity, while Jamacia and Jaffa oranges, now competing with Valencias on British markets, have steadily gained in favor. A box of Jaffa oranges containing 144 to 152 oranges, or about one-third the number in a Valencia case, realizes at present on British markets one shilling (24 cents) more than the latter.

CHILE.

STEADILY INCREASING GRAPE INDUSTRY—RED WINE MAINLY PRODUCED.

Consul Alfred A. Winslow, of Valparaiso, reports that much attention is given the cultivation of grapes in Chile, and the manufacture of wine therefrom, as will be seen by the following statistics:

The industry is growing rapidly and promises well. The climate and soil are most excellent for the production of some of the best varieties of grapes. In 1906 there were 57,665 hectares, or 142,493 acres, under cultivation, against 51,539 hectares, or 127,354 acres, for

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1904. In 1906 there were 17,260 hectares under cultivation on irrigated lands. The grapes grown on the irrigated lands were the best. The production of wine for the harvest of 1906 amounted to 157,604,656 liters (liter=1.0567 quarts), of which the greater proportion was red wine. The production for 1907 exceeded that of 1906 very materially, but the exact figures can not yet be given.

During 1906 wine to the value of $203,430 United States gold was imported, of which the United States furnished less than one-half of 1 per cent. During the same time Chile exported wine to the value of $54,740.

AUSTRALIA.

PROTECTION OF BANANAS INTENDED FOR EXPORT.

Consular Agent Asbury Caldwell, of Brisbane, reports that a regulation has been passed by the Queensland department of agriculture, providing that all bananas intended for export to Victoria shall be covered with fine cloth netting for three weeks prior to plucking the bunch. This has been found, by experiment, to be an effective protection against the Queensland fly, which when introduced works serious ravages in all orchards. This regulation harmonizes with the Victorian state regulation, which forbids importation of bananas from the Tropics, unless they have been so protected.

CEREALS IN LATIN AMERICA.

NICARAGUA.

PRIMITIVE MANNER OF FOOD PREPARATION.

In reply to inquiries from a Western company, Consul Frederick M. Ryder, of San Juan del Norte, furnishes the following information relative to the growth and consumption of cereals in Nicaragua:

Corn and rice are the only food cereals grown in this Republic, and these are not cultivated in sufficient quantity to supply the home market. All the corn and most of the rice consumed on the east coast of Nicaragua is imported from the United States. Oatmeal is used to some extent in this section by the foreign population. Grain is not grown in this locality, for the reason that neither soil nor climate are favorable. The soil is generally low and swampy, while the heavy rainfall would wash the seeds out of the ground, and the swarms of large ants would carry off the grain. Much of the corn in the interior, as well as a considerable quantity in this locality, is used as foodstuff, and for this purpose the home product is preferred, as much of it is consumed before it becomes thoroughly hardened.

PREPARATION OF THE TORTILLAS.

The favorite preparation of the corn is similar to ordinary corn fritters, and is known as "tortillas." The grain is boiled whole, with lime and wood ashes, in several waters, until the husks become separated, when it is drained and allowed to dry. When the kernels are freed from the husks, they are rubbed and thoroughly dried over a fire until slightly parched, and then are ground on the native "rubbing stone." This mode of grinding, which is not confined to

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cereals, is crude and primitive, and its use demonstrates the unwillingness of the people to adopt modern methods, even while they acknowledge their simplicity and labor-saving advantages. These rubbing stones, which vary in size according to the requirements of the family, are flat stones, with concave surfaces, standing on four small legs of stone. A rolling-pin, also of stone, is used for grinding, the process being much the same as the rolling of dough for pastry. The meal is not finely ground, but resembles coarse oatmeal, and is usually rolled into the shape of a ball. When required for use, pieces are broken off, and moistened slightly, so as to be easily molded in the hands into the form of a pancake, only a little thicker. The baking is done in an earthen dish over an open fire. The people do not seem to be satisfied with any repast, however elaborate, which does not include this favorite dish.

INTRODUCTION OF AMERICAN CEREALS.

The Nicaraguans are loath to depart from long-established customs, particularly in the matter of foods and their preparation. Imported oatmeal and corn meal are used to some extent for porridge and for thickening soups, but the many varieties of American cereal or breakfast foods are practically unknown.

American manufacturers who decide to test this market should send the cereals in hermetically sealed tins or boxes of from 3 to 5 pounds each, carefully packed in light but durable cases. The only successful method of introducing these goods would be to send a reliable Spanish-speaking representative to demonstrate how partially cooked cereals containing the maximum of nutrition may be prepared with the minimum expenditure of cost, time, and labor.

After this preliminary work the representative should select the best and most reliable merchant in the locality as a distributing agent. Without this introductory demonstration, however, it is useless to name an agent, especially by correspondence. The resident agent should not be permitted to carry an extensive stock of these goods, as they soon become lumpy and musty in this climate, on account of its excessive humidity.

PARAGUAY.

FOODS ARE SIMPLE AND CHEAP—NO MARKET FOR ANIMAL FEED.

Consul Edward J. Norton writes from Asuncion that there is very little demand for cereals or breakfast foods in Paraguay, and that this is confined to the foreign element and a few of the native families. The report continues:

The majority of the Paraguayan people are poor, and their food is necessarily simple and cheap. The staple crop of the country is corn, and this is one of the principal materials used for food. The leading variety here is a white grain, which is eaten roasted on the ear, baked in a frying pan, cut up into the "puchero," or native boiled dish, or ground into meal, which is mixed with lard and cheese and baked into a sort of bread called "chipá de maiz." This bread is consumed in large quantities in all sections of the Republic. Another variety of corn in general use is a hard, yellow grain, which is usually boiled or thoroughly soaked and eaten with milk or sugar. This is also used in the production of a native drink. Paraguay ex-

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ports corn at irregular intervals when there is a surplus stock on hand; but as a rule these shipments are small.

Wheat and oats are not grown in this country. Wheat is imported from the Argentine Republic and ground at Asunción. Bread of wheat flour is becoming more and more an article of daily consumption in the larger cities, but in the smaller towns and in the country districts the use of corn flour is general.

Manioc, or mandioca, is, next to corn, the staple food of the people, and is called "Paraguayan bread." It is eaten, either boiled or baked, at every meal by all classes. The starch or flour, with the addition of eggs and cheese, is made into a bread called "chipá de mandioca." Although Paraguay has lands adapted to rice growing, little attention is paid to this crop, and the bulk of the rice consumed is imported.

All of the larger groceries carry stocks of the foreign cereal foods sufficient to supply all demands. Any efforts to increase sales would probably meet with disappointment. American oats in 2-pound tins retail for 4.80 pesos, or 40 cents gold per tin; 1-pound cartons sell for about 22 cents gold. German rolled oats in 1-pound tins sell for 30 cents gold and Scotch oatmeal in 2-pound tins for 50 cents gold. [A list of dealers which handle such goods is on file in the Bureau of Manufactures.]

MEXICO.

SHORT WHEAT CROP NECESSITATES IMPORTATIONS.

Writing from Saltillo, Consul Thomas W. Voetter says that on account of the poor Mexican wheat crop harvested in 1907 about all the wheat raised has now been ground and the mills will shut down, to which he adds:

The supply of flour on hand is not sufficient to last until the new crop is harvested, and millers here are desirous that the Federal Government should reduce or take off completely the import duties on wheat, but so far as known, no concerted effort has been made to secure this action. One of the mills in Saltillo has for several months past been grinding wheat from the Argentine Republic, which was imported at the period when the Government last reduced the import duties on wheat.

MEXICAN SUGAR INDUSTRY.

GREAT PROGRESS SHOWN THROUGH INTRODUCTION OF MODERN METHODS.

Special Agent Arthur B. Butman makes the following report on the production of sugar in Mexico, and also shows the trade in this commodity and its products between the Republic and the United States:

Sugar is produced in numerous States throughout the Mexican Republic, Morelos having the largest production. The industry, which was introduced by the Spaniards soon after the Conquest, is by no means confined to the planter of wealth and vast acreage, nor is it carried on according to up-to-date methods. The native plants his small area of rented land in the most primitive manner, sometimes without plowing the ground—merely clearing and burning—and by

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means of wooden rolls and copper kettles produces the various sorts of brown sugar known as panela, panocha, and piloncillo.

Great progress has been shown in the industry in recent years. The amount of foreign capital invested is constantly increasing, advanced methods of planting and harvesting are being introduced, and modern mills and refineries erected, while the old plantations are also being improved, and new machinery substituted for that formerly used.

For the purpose of protecting and advancing this important industry a presidential decree went into effect as a law at midnight February 15, 1908, raising the duty on common sugar, candy sugar, and refined sugar of all kinds, to 5 cents for each kilo (2.2 pounds), gross weight. The duty formerly prevailing was 2½ cents a kilo.

UP-TO-DATE MILLS—CULTIVATION OF SUGAR CANE.

The most important sugar mill in Morelos is at Teuxtepango, which handles the cane for the surrounding country, as well as that grown on the owner's hacienda, or plantation. About 3,750 tons are estimated as likely to be turned out during the present season.

On February 1, the plant of The Mexican National Sugar Refining Company was put into operation at El Portero, in the State of Vera Cruz, which will have a daily capacity of 125,000 pounds of sugar. The company, which is composed of American capitalists, has constructed a modern plant, equipped with the most up-to-date sugar-making machinery, from the United States. The American standard qualities of sugar will be turned out, from the pure white crystals to the brown sugar known in the United States as "third." Granulated sugar of the finest white quality will also be produced. The cane mill connected with the plant will have a capacity of 800 tons of cane a day, which will be supplied from adjacent plantations and from the 2,000-acre hacienda owned by the company, surrounding the central. A distillery will be operated in connection with the plant, having a capacity of 3,000 gallons of alcohol a day.

A great deal of land in Mexico is suited to cane growing, and it is doubtless due to the primitive methods of cultivation and manufacture employed, as well as the former difficulties in the way of transportation, that the Republic has not entered more largely into the sugar export trade. Great fertility of soil abounds in the Gulf States, and the rainfall is ample, being estimated as about 100 inches annually. In the inland State of Morelos, however, where the largest quantity of sugar is produced, irrigation is necessary, as is also true of cane lands on the Pacific coast. Lands on the elevated levels will yield less than the lowlands. I am told that from 25 to 45 tons of cane an acre is an average yield on the elevated plantations and from 40 to 60 tons in the tropical lands. Replanting is necessary more often in the highlands than in the lowlands, where every seven or eight years is sufficient. The cane grows to a large size, especially in the Gulf States region, and crushed at full maturity yields a density of from 9° to 11½° baumé.

REPUBLIC'S PRODUCTION OF SUGAR.

For the fiscal year 1900, the production of sugar in Mexico was estimated at 75,000 tons, while the production for 1906 reached 107,500 tons. The production for the present season will probably yield, according to the present estimates, about the same quantity. A lack

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of rainfall in some sections prevented what had been previously estimated as a record cane crop.

The following table shows the production, by States, of sugar and molasses, in metric tons, of 2,204.6 pounds, for the fiscal year 1906:

State.	Molasses.	Sugar.	State.	Molasses.	Sugar.
	Metric tons.	*Metric ons.*		*Metric tons.*	*Metric tons.*
Campeche	654	542	Puebla	6,037	6,549
Chiapas	622	372	San Luis Potosi	3,594	1,925
Colima	1,330	1,740	Sinaloa	3,860	8,540
Guerrero	2,652	2,096	Tabasco	1,065	1,967
Jalisco	6,448	6,196	Tamaulipas	1,529	1,694
Mexico (Federal District)	747	158	Tepic	2,000	2,500
Michoacan	13,675	6,650	Vera Cruz	9,312	16,297
Morelos	21,257	35,662	Yucatan	2,190	1,241
Nuevo Leon	350	914			
Oaxaca	2,134	1,417	Total	79,396	96,469

EXPORTS AND IMPORTS OF SUGAR AND PRODUCTS.

The exports of sugar from Mexico have been for the past four fiscal years as follows:

Year.	Sugar.	Coarse sugar.	Year.	Sugar.	Coarse sugar.
	Metric tons.	*Metric tons.*		*Metric tons.*	*Metric tons.*
1903	8,003	255	1905	38,701	569
1904	16,313	177	1906	5,072	122

The falling off in exports for 1906, which represented in value about $2,500,000 United States currency, was due to the sugar crisis affecting the American and European markets. The effects of this abnormal decline were modified in a degree to the Mexican planter by the increased domestic demand sufficient to maintain lucrative prices for his product.

The amount and value of Mexico's sugar export trade with the United States for the fiscal years 1902–1907 is shown as follows:

Year.	Pounds.	Value.	Year.	Pounds.	Value.
Not above No. 16 Dutch standard in color:			Above No. 16 Dutch standard in color:		
1902	336,915	$9,340	1902	1,453	$68
1903	2,195,892	93,572	1903	218,481	9,867
1904	867,547	17,346	1904	382,705	18,652
1905	19,376,601	646,573	1905	4,672,888	286,711
1906	2,196,269	50,411	1906	1,344,715	71,515
1907	6,340,156	194,893	1907	13,272	536

During the same period the United States exported to Mexico sugar, molasses, and confectionery to the following values:

Articles.	1902.	1903.	1904.	1905.	1906.	1907.
Sugar	$63,970	$25,722	$26,150	$28,538	$228,759	$236,062
Molasses and sirup	521	933	960	1,258	1,999	4,944
Confectionery	15,731	17,883	19,086	22,420	21,343	20,927
Total	80,222	44,538	46,196	52,216	252,101	261,933

[From preliminary data compiled by the Bureau of Statistics from the monthly returns, the total imports into Mexico of sugar and products during the fiscal year ended June 30, 1907, were shown to be as follows: Sugar, raw and refined, $219,854; molasses, sirup, and preparations of sugar used in making wines and liquors, $14,726;

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confectionery and chocolate, $74,095; total, $308,675. These figures, while derived from slightly different classifications of the articles, indicate that the bulk of the trade is held by the United States.—B. M.]

GERMAN POTATO PRODUCTS.

FLAKES FOR CATTLE FOOD.

ECONOMICAL UTILIZATION OF SURPLUS CROP OF EMPIRE.

Consul John E. Kehl, in the following report from Stettin, gives an account of the German success in making potato flakes for stock-feeding from the superabundant tuber yields.

Germany's annual potato crop for the past seven years has averaged 43,000,000 tons. The supply was, and still is, considerably in excess of both household and industrial demand. New channels had to be found to profitably use up the surplus and, if possible, to save a portion of the 10 per cent of the total crop which annually goes to waste through lack of proper winter storage and decay. During 1901 the German Association of Alcohol Manufacturers, the largest industrial consumers of potatoes, took this task upon themselves and organized a branch to their association to be known as the Verein Deutscher Kartoffel-Trockner (German Potato Dryers' Association), to be devoted to the question of using dried potatoes in various forms for stock feed.

To increase general interest in this question, the alcohol association succeeded in raising from interested sources, including two subscriptions from the Government, the sum of 30,000 marks ($7,140) to be distributed as prizes for the best methods of reducing potatoes to a durable stock feed. The conditions were that the total cost of drying 100 pounds of potatoes should not exceed 5 cents, including fuel, labor, interest, and depreciation; the last two items on a basis of 100 working days per year, and that large plants should have a minimum capacity of 10 tons of raw potatoes in 12 hours; small plants 2½ tons in the same time.

RESULT OF CONTEST—LEADING SYSTEMS.

Some 40 entries were made, of which 22 failed to answer the requirements. It was noted that the systems using fuel gas for drying purposes were operated at less expense that those using steam. The present cost of producing 100 pounds of potato flake is from 5 to 10 cents with gas, and from 12 to 20 cents with steam. These figures could not be applied to American conditions on account of wages, which would be from 200 to 300 per cent more than are paid here.

The so-called "Paucksch" system for producing potato flakes is, in brief, as follows: The potatoes are washed, then thoroughly steamed, after which they are passed between two rollers heated to 140° Cel. = 284° F.; the thoroughly dried crushed substance in the shape of small flakes is then removed from the rollers by stationary knife blades and passed through a cooling funnel, after which it is ready for use or storing.

The "Heiler" system for making potato flour consists of washing the potatoes, then after crushing them into a cold pulp, the matter

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is passed into a gas or steam-heated drum for drying purposes; when thoroughly dry it is spread for cooling and then ground into flour.

There are many other systems, but the brief descriptions given will suffice to show the fundamental principles for manufacturing potato flake and potato flour.

VALUE AS STOCK FOOD.

It is now believed that the surplus supply of potatoes can be worked up into a nourishing and profitable animal food product, with an unlimited disposing field and, according to optimistic opinions, will make the German farmer independent of foreign feeds, particularly American corn.

The present demand for potato flake will exhaust the entire supply by April. Within the next two years an attempt will be made to export this article to the United States. At present there are about 130 potato-drying plants in operation throughout Germany. Potato flake sells at $3 to $3.50 per 100 pounds; potato flour and other forms of dried potatoes at $1.50 to $2.50 per 100 pounds. It is estimated that 3½ hundredweight of raw potatoes are required for 1 hundredweight of flake, that the steam-dried flake is softer and whiter than the gas-dried article.

Potato flake is said to contain 80 per cent carbonic hydride with 62 per cent amylum, and is readily eaten and easily digested by all animals, including ruminants. Two pounds of potato flake mixed with 5 quarts of milk and 1 pound of linseed cake is said to make an excellent feed for calves; for draft horses, 8 pounds of flake and 4 pounds of oats mixed in addition to hay; for fattening hogs, 3½ pounds of flake and 4 pounds of ground barley mixed with water or sour milk is used; milch cows are given 2 pounds of flake and 2 pounds of bran mixed in addition to other feeds.

A sample of potato flake made by the Paucksch system is forwarded herewith [on exhibition at the Bureau of Manufactures].

ALCOHOL MANUFACTURE.

EXCELLENT YIELD OF TUBERS—PRODUCTION OF SPIRITS.

Consul-General Richard Guenther, of Frankfort, states that, according to statistical findings, the potato crop of Germany in 1907 amounted to 45,538,299 metric tons (metric ton=2,204.6 pounds), of which a large percentage was converted into alcohol. Further particulars follow:

Last year's crop was one of the largest and best since 1899, only 6.4 per cent of it having been diseased. The alcohol production in Germany is controlled by a trust which fixes production and price. The trust limited the output of alcohol in 1907 to 82 per cent of the total capacity of the stills, resulting in the production of 3,836,614 hectoliters (hectoliter=26.4 gallons), against 4,378,464 hectoliters manufactured in the preceding year.

Of the 1907 production 105,000,000 liters (liter=0.264 gallon) were completely denatured, an increase of 11,000,000 liters over the year before. For drinking purposes 2,439,720 hectoliters were used, an increase of about 174,000 over 1906; 215,619 hectoliters of alcohol

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were exported, of which Russia and Italy received considerable quantities.

The price for alcohol was high, having been considerably advanced at different times. German alcohol is principally made from potatoes. As a beverage it is sold very cheap. At the popular dramshops a drink (small wine glass) can be had for 6 pfennigs (1½ cents).

Among statesmen and economists in Germany there are many who advocate the monopolization of the production and sale of alcohol by the Federal Government of the Empire, on the plea that the large profits from this industrial branch would revert to the state and could also benefit the community by making low prices when the article is used for industrial purposes and by putting a high price on drinkable alcohol so as to check drunkenness and diminish crime, disease, and distress, of which alcohol is so largely the cause.

TEA INDUSTRY.

BRITISH INDIA.

DECREASED CROP AND DECREASED EXPORTS LAST YEAR.

Consul-General William H. Michael advises that the Calcutta tea market opened January 7, after the holidays, and 28,500 packages were offered for sale. He gives further particulars as follows:

On the whole, the quality must be considered rather disappointing. The majority of teas barely maintain the average standard. There is no doubt that even in the Dooars, which on the whole has done well, there has been less of the good autumn teas made in 1907 than in the previous year. A few Darjeelings are included in the present sale, but the hill district teas are practically finished. Assam teas are a fair lot, but show nothing very distinguished in style or cup.

Indian exports now show plainly the effects of a reduced tea crop. The total export figures for 12 month periods ending January 9, 1908, were as follows:

Whither exported.	Up to January 9—		Whither exported.	Up to January 9—	
	1907.	1908.		1907.	1908.
	Pounds.	*Pounds.*		*Pounds.*	*Pounds.*
United Kingdom	150,750,000	147,250,000	Bombay	4,000,000	4,858,000
United States	12,461,000	3,875,000	Other places	5,440,000	3,485,000
Russia	17,000,000	25,500,000			
Australasia	8,849,000	10,282,000	Total	198,500,000	195,250,000

The variance in the statistics of tea exports to the United States arises through the fact that so much destined for America is transshipped via Great Britain or China. Tea experts place the amount really going to the United States in 1906 as 10,784,00 pounds, and 9,684,00 pounds in 1907.

Ceylon made a considerable spurt in its tea exports during the closing months of 1907. The total exports from the island for that year amounted to about 112,000,000 pounds, against 107,000,000 pounds in 1906, an increase of 5,000,000 pounds. This was a very heavy increase, yet it was not sufficient to counterbalance India's deficit, combined with increased demand. A noteworthy feature of the trade of Ceylon

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in 1907 was that its exports to Russia, although greater than in 1906, fell far behind the Indian tea exports to that Empire.

BRIGHT PROSPECTS FOR INDIAN AND CEYLON TEA.

According to a local review of the Indian and Ceylon tea markets for 1907 the prospect is most encouraging. It says that the average price of tea was the highest during the year since 1899. This statement, however, does not necessarily imply good results to all producers, because one of the chief features of the past twelve months was the high price ruling for common grades. Taking the industry as a whole, there seems every probability that the depression which has ruled for many years has at length passed away, for production has shown little increase in the year just ending, while consumption, both at home and abroad, has materially increased, and very little additional land is being placed under tea cultivation.

One of the most remarkable features of the last two years has been the great expansion in the use of Indian and Ceylon teas abroad. This rose from 129,884,250 pounds in 1905 to 162,461,824 pounds in 1906 and about 171,500,000 pounds in 1907. When it is remembered that in 1890 the total consumption of Indian and Ceylon tea abroad was only 14,001,132 pounds, the progress made is really startling. There is no doubt that the expansion in these markets has saved the industry from very serious losses, and largely contributed to the more satisfactory position at the present time.

RUSSIA.

IMPORTS, CONSUMPTION, AND CULTIVATION IN THE EMPIRE.

Consul William W. Masterson, of Batum, in transmitting the following information, reports that the Russians are said to be the greatest consumers of tea of any people in Europe:

About one-half the tea imported into this district is received by sea at the ports of Batum and Novorossisk, and is entered through the custom-houses of Tiflis, Baku, Askhabad, Bokhara, Samarkand, Kokand, etc., but a great portion of the tea reported from the custom-houses at Askhabad, Bokhara, and Samarkand is imported direct from China by caravan and by the Siberian Railroad, and it is impossible to tell just how much comes by sea and how much overland.

Of the 37,759 tons of tea imported into the district during the past seven years, over 32,000 tons were green tea, the most of which is reported in the three Central Asian custom-houses of Askhabad, Bokhara, and Samarkand. The brick tea received at Novorossisk and Batum (2,226 tons and 6,403 tons, respectively, during the past seven years) is of poor and cheap quality, and is imported in this form.

The tea that comes into this district by sea is brought by the steamers of the Russian Volunteer Fleet, a line that runs from Vladivostock to Odessa, via the Suez Canal, and the item of tea is at present the most valuable part of the cargoes of the ships coming west. It is estimated that about 75 per cent of the tea imported into this district comes direct from China, and practically the remainder from India.

CONSUMPTION AND CULTIVATION.

The consumption of tea is not confined to any particular class, but from the prince to the peasant all the people are tea drinkers, and the

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use of coffee and cocoa is not in any manner so universal, being, in fact, almost unknown outside the cities and larger towns.

Owing to the almost semitropical climate that prevails in this part of the Black Sea region, frequent attempts have been made to cultivate tea in paying quantities, and the Russian Government at its experimental station located here, under the title of the Imperial Domains Estate, has for several years past cultivated tea in considerable quantities, the growth and the preparation of the tea being under the supervision of Chinese brought here for that purpose.

A large firm of Moscow merchants also have a tea plantation located here, that for several years did a considerable business in raising and selling tea, but during the past year, owing to financial difficulties and the unsettled condition of the country, this plantation has not been worked to any extent. In addition to these two estates a number of owners of lands along the Black Sea coast, immediately to the east of Batum, are raising tea in small quantities, which is sold in the local market at a reasonable figure, and the prediction is frequently expressed that when conditions permit and the small landowners become educated in the proper method of its raising and curing, a considerable portion of the tea consumed locally will be of home production.

A trial shipment of 40 chests, containing some 2,000 pounds of Batum tea, was sent to the United States some little time ago, but no further shipments have been made.

DANISH MARKETING METHODS.

FARMERS' EGG EXPORT COMPANY—FRUIT MEN PROMOTE HORTICULTURE.

The principal reason why the export of agricultural and other farm and garden products from Denmark has reached the present dimensions, states a Canadian trade commissioner, lies in the forming of cooperative export associations, whereby quality and packing, etc., become uniform and reliable. The commissioner also says in his report to Ottawa:

Besides the dairy and creamery associations there also exist such cooperative associations for egg and fruit producers. The Danish Farmers' Cooperative Egg Export Association, founded in 1895, now counts about 40,000 members and has its own paper. The object of the association is to work up the best possible market in foreign countries for Danish eggs, by guaranteeing the buyers that the eggs sold under the mark of the association are strictly fresh and clean. It has packeries in the principal cities. Every week the association sends out a list of prices, which then is in force from Thursday morning to the next Wednesday evening. The sales of the association amount to about $1,125,000 per year. [Great Britain alone imported from Denmark in 1907 3,800,366 great hundreds valued at $8,634,720. This was an average of 22.7 cents per dozen, against an average rate of 21.1 cents the year previous, and 20.6 cents in 1905.—B. of M.]

The Danish Fruit Producers' Association, founded in 1888, has now about 7,000 members, and like the egg exporters, also have their own paper. The association's work consists in arranging expositions

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and discourses and also by sending out traveling teachers throughout the country. Further, it assists the members in obtaining the most suitable young trees and plants, as well as in the most profitable sale of their products. The sales of the association now amount to about 1,500,000 pounds of fruit per year.

TURKISH BARLEY SHORTAGE.

EXPORT PROHIBITED AT SMYRNA—OPPORTUNITY FOR SALES.

Consul Ernest L. Harris, writing under date of January 8, advises that the embargo recently placed by the Turkish Government upon the export of barley from the port of Smyrna is still in force, to which he adds:

One of the largest shipping firms in this city, as well as some minor ones, are having considerable trouble in attempting to carry out orders placed for their customers before this prohibition went into effect. A period of six weeks was given them to meet their engagements, but they state that this limit has not been sufficient. There is a great shortage this season all over the country, and there is as great an opportunity for the sale of barley in these parts as there is for wheat.

It must be understood, however, by American dealers in cereals that the present great demand for foreign grain in Asia Minor is but a temporary one. Asia Minor is naturally a grain-producing country, and it is only when it is visited by a famine, as at present, that the prices of all foodstuffs rise rapidly, and an artificial demand is thereby created for foreign products. In view of this, it may be safely predicted, in the natural order of things at least, that the present market for foreign cereals will last about another six months.

Barley is one of the most important cereals in Asia Minor. This is not only true to-day, but it has been so as far back as the history of this country may be traced. In districts where rice is not to be obtained it is even used as a substitute for the natural Turkish dish of "pilaf." The neighborhood of Amasia and the plains of Sivas are celebrated regions for the production of barley. More than 50,000 tons annually are exported from the port of Samsun.

FRENCH SEA FOODS.

MARENNES OYSTERS—APPEARANCE OF AMERICAN FISH.

Consul George H. Jackson, of La Rochelle, sends the following information concerning oysters and fish on the French coast:

The Marennes oyster is considered the most popular in France. The oyster parks are laid out in the space between the island of Oleron, the island of Aix, and the mainland. Each ebb tide permits the waters of the Seudre to flow over the beds. The bivalves are brought to this locality in large numbers from the breeding beds at Arcbeson. Here they are deposited in the mud to fatten and to take on the peculiar coppery tint and taste, which makes the green oyster of Marennes popular in France. According to the statistics of 1907, shipments of oysters from one of the two railway stations gave a total of 8,220 tons,

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which necessitated the use of 620 freight cars. The increase over 1906 was over 150 tons.

A number of fishes hitherto unknown in these waters, but well known on the Atlantic coast of the United States, have recently appeared, among the most numerous being the sheepshead and the bluefish. The appearance of this new sea food has caused considerable interest in the fishing industry. Up to the present time, however, I have only seen fish that are large and strong. The presence of shad is also greatly appreciated, but is due directly to the fish culture in the streams emptying into the Bay of Biscay. Shad bred in these waters apparently differ slightly in form and color from the American variety.

ENGLISH HOP YIELD.

DISAPPOINTING CROP RESULTS IN THE COUNTY OF KENT.

Consular Agent F. W. Prescott, of Dover, reports that, although the yield of hops last year in the English county of Kent was somewhat better than in 1906, many gardens proved an entire failure, and were not picked. The consular agent adds:

The prices were also disappointing, and following upon the recent convention of hop growers held at the agricultural college at Wye, an important debate took place recently at the Associated Chamber of Agriculture, when the delegates from Kent and Sussex advocated an import duty of 40 shillings per hundredweight ($9.73 per 112 pounds) on all foreign hops.

In support of this proposal it was pointed out that in 1878 there were 71,000 acres under hop cultivation in this country, which has been reduced to 44,938, and during the past year 202,304 hundredweight of hops were imported, of which America sent 126,122 hundredweight. The resolution for an import duty was supported by other hop-growing districts, but did not find favor with the majority of those present at the meeting and in the end it was withdrawn.

CHILEAN MEAT SUPPLY.

BEEF STOCK SCARCE—DUTY REMOVED ON ARGENTINE ANIMALS.

Consul Alfred A. Winslow, of Valparaiso, reports that the conditions in Chile have been such that the cattlemen of that country have not been able to furnish beef cattle sufficient to supply the demand. He adds:

In consequence the price of meat has been exorbitant for this part of the world. In Valparaiso the best cuts have been selling for 18 to 20 cents United States currency per pound, and hard to get at that. This was the result of two very dry seasons, when cattle died by the tens of thousands for want of food. Pastures in many cases failed entirely, and as no reserve provision, in general, is made to feed stock, the cattle were left to die. The most of those that survived will be of little value for some time to come.

To meet this emergency the Government of Chile has suspended the duty on cattle from the Argentine Republic for a period of two years from December 16, 1907.

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TRANSPORTATION.

WORLD'S RAILWAY SYSTEMS.

BOLIVIA.

MORE MATERIAL WANTED—THE MONEY PROVIDED—PROJECTED ROADS.

Special Agent Charles M. Pepper, in a recent report from La Paz on the railroad situation in Bolivia, says that the money has been provided to carry on the work already undertaken, and that a market for considerable railway material may be found in that country, where Americans engaged in the railway business are held in high regard. Mr. Pepper writes:

Purchases of railway material for Bolivia have not ceased, nor are they likely to cease. The conditions which obtain in other parts of the world are, of course, reflected in this section of South America, and since Bolivia's chief products for export are tin, silver, and copper the fall in the price of those minerals affects both general business and the revenues of the Government. But, fortunately for the country, the funds for railway construction are not dependent on current resources. The Bolivian Government is now reaping the benefit of its action in dealing with responsible financial interests in the United States, and American manufacturers of rails and material should have the advantage of a continuing market.

The $12,000,000 of the Government, to which the Speyer-National City Bank syndicate contracted to add $15,000,000, making a total fund of $27,000,000, will all be spent in building railroad lines, as originally agreed upon. The present situation, concerning which misleading reports have been published, is due to the certainty that $27,000,000 will not build as many miles of railway as was anticipated, and various plans are under discussion for relocating some of the proposed lines and satisfying the aspirations of various districts for railway communication.

FAIR PROGRESS IN RAILWAY WORK.

The actual condition to-day is that work is progressing with reasonable rapidity on the line between Viacha and Oruro. Viacha is on the existing railway, 20 miles from La Paz and 35 miles from Gaugui, on Lake Titicaca. The line from Viacha to Oruro is 125 miles in length. About half the distance is completed and open to traffic. The rails and other material for the remaining section are either on the ground or at Mollendo awaiting transportation, and there is no reason to doubt that the expectation of the contractors that the railroad will be completed to Oruro and opened for traffic in June will be realized.

The total cost of this Oruro-Viacha section, including rolling stock, shop equipments, terminal facilities, engineering, and office expenses,

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will be approximately $4,000,000, or $32,000 per mile. It is not to be assumed, however, that the proposed network of Bolivian railways can be built and equipped at an average of $32,000 per mile. The central plain across which the Oruro-Viacha line runs is far from presenting a billiard-table surface. It is very broken, has some heavy grades, and requires a good deal of bridging and "viaducting" for protection against the rainy season. But it is of easy construction compared with the sections which are to be built in order to provide transportation facilities for the Potosi and other mineral districts, and its average cost per mile does not afford a safe basis of computation.

A VERY PROFITABLE LINE.

Part of the material for the Potosi section has been landed at Mollendo and will be delivered in the interior in time for the construction to begin in June. One of the unsettled questions, however, relates to this line. If laid in conformity with the original plans, part of it will parallel the Antofagasta-Oruro Railway between Myuni and Oruro, the distance between these two points being 195 miles. The Antofagasta line, whose total extension from the coast to its terminal point at Oruro is 575 miles, is, in proportion to its length, the most profitable railroad on the west coast of South America. It is operated by an English company, though some shares are held in Chile. The Bolivian Government guaranteed 5 per cent on $3,750,000, which was the capital estimated to have been employed in building the Bolivian section of 300 miles, but the traffic has been so profitable that the payment of the guaranty never has been necessary. Notwithstanding the profits, the company has done little for the development of Bolivia since it failed to exercise the rights claimed for building extensions and to provide sufficient transportation facilities for the territory which it should have served.

A DIFFICULT QUESTION.

The pending question is whether the Bolivian Railway Company, which is the American syndicate, and the Antofagasta company will come to some kind of a traffic arrangement for the operation of the Oruro-Myuni section of the Antofagasta line or whether the parallel road shall be built. One hindrance to an agreement is the gage of the Antofagasta road, which is 2½ feet, while that of the Bolivian railway is 3 feet 3⅜ inches, or 1 meter. The American capitalists would have preferred the standard gage of 4 feet 8½ inches, but the preference of the Bolivian Government and the lower initial cost caused the meter gage to be adopted. There is no probability, however, that the Americans will consent to take a step so far backward in railway construction as to incorporate a 2½-foot gage into any part of their system. The Antofagasta company, on its part, has a positive objection to the transshipment at Myuni, which will be necessary if the gage be changed. The shipments from the Huanchocho mines, near Myuni, which are in Bolivian territory, and from the Chilean nitrate fields, which lie convenient to the coast, would be continued over the very narrow gage section, but the products of the Oruro mining district, which might be shipped out by the Antofagasta line, and the general merchandise imported would have to be transshipped at Myuni.

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THE GOVERNMENT MAY HAVE TO TAKE POSSESSION OF A ROAD.

It would be to the advantage of the Antofagasta company if the Viacha-Oruro line were not built at all, since this will divert some traffic by way of Lake Titicaca and Mollendo and later by the more direct route of Arica, but since the London company has not been able to prevent the construction of this railway, and will not be able to hinder more than temporarily the construction of further lines, the practical question is how best to adopt itself to the circumstances. In case the Bolivian Railway Company and the Antofagasta company fail to come to an agreement an extreme measure suggested is that the Bolivian Government expropriate the Myuni-Oruro section of the Antofagasta line.

London directors of South American corporations have not heretofore shown much disposition to accommodate themselves to new developments, particularly where their properties are earning satisfactory dividends without outlay for betterments or changes in the gage and new equipment. This may account for the doubts felt in Bolivia about an agreement being reached which will insure harmonious instead of competing and combative railway construction.

THE MARKET FOR MATERIAL NOT AFFECTED.

It is worth knowing that these complications will not affect the market for material. If a friendly understanding is reached by the Bolivian Railway and the Antofagasta line, it will enable a geographical modification of the routes agreed on in the contract between the Bolivian Government and the Speyer-City Bank syndicate to be made without decreasing the amount that ultimately will be paid out for material. Should a joint agreement be made, the gage of the Oruro-Myuni section will be widened from 2½ feet to 3 feet 3⅜ inches, which will practically mean the reconstruction of the line, and new rolling stock will be required. If this is not done at once, and the American syndicate in constructing the Potosi line parallels the Oruro-Myuni section of the Antofagasta line, the latter, to protect itself, in the end will have to adopt the meter gage. There are, in fact, railway men who insist that in spite of the profitable traffic which the Antofagasta company handles over a 2½-foot gage the whole line will be reconstructed on a meter gage. This would mean heavy purchases of new rails and rolling stock. But there are no indications from London that this possibility is recognized.

A NEW CHILEAN LINE.

In addition to the material which will be needed for the railroads of the American syndicate, there is now something more than a prospect that the so-called Chilean line from Arica to La Paz will be built. Complete and final engineering surveys have not been made to the extent of fixing a definite location from the Bolivian border, but the tentative surveys indicate alternative routes varying from 300 to 320 miles across the volcanic range of the Cordilleras. Whatever route is adopted, the Corocoro copper fields will be tapped and the Arica line will be the shortest one between the interior of Bolivia and the Pacific coast, though it will not traverse a region in which much local traffic can be developed.

Provision was made for the construction of the Arica-La Paz line by Chile under a treaty entered into by Chile and Bolivia in

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October, 1904, and subsequently modified in some particulars. It is not necessary to repeat the details of the treaty or the reasons assigned for it. The intention was to provide Bolivia an important railway outlet within a short period and to create a market for railway material. A Chilean syndicate was given the concession for constructing the line, but proved unable to do so.

CHILE'S DELAY LEADS TO REMONSTRANCE FROM BOLIVIA.

The Bolivian Government was reported to have made energetic diplomatic remonstrances to Chile over the delay in beginning the construction of the Bolivian section. In November, 1907, under an agreement with the Chilean Government, the contract was taken over by the Deutsches Bank of Berlin, whose South American representative is the Banco Aleman Transatlantico. Partial funds are said to be in hand for the work, which is to be completed within four years. It is now reported that the Deutscher Bank has let the contract to a leading German construction company, which is building railroads in Venezuela and other foreign countries. It is assumed that the rails for the Arica line will be furnished by the German steel syndicate, but it does not follow that all the rolling stock and other equipment will come from Europe. The Banco Aleman Transatlantico is the Bolivian banking agent of the American syndicate, and its principal in Berlin is understood to have an interest in the syndicate's Bolivian enterprise. The assumption is that there will be reciprocity and that the American syndicate will become interested in the Deutsches Bank's enterprise. If this is done, there should be opportunity for the sale of railway material by manufacturers in the United States. The Americans who are now engaged in railway construction in Bolivia are not impressed with some of the reported engineering features of the proposed Arica line. One of these, which they regard as a serious mistake, is the adoption of a 6 per cent grade and the use of the rack and pinion system to surmount it. This plan, however, may be changed by the German engineers.

OTHER RAILWAY PROJECTS.

In addition to the actual construction of lines by the American syndicate and the prospective construction of the Arica line by the German banking interests, acting for the Chilean Government, there is the almost certain construction of a 55-mile extension in southern Bolivia by the Argentine Government. This will be from Quiaca, on the border, to Tupiza. The Argentine lines have now reached the boundary, and their prolongation to Tupiza has been provided for in several treaties and protocols signed by the two Governments. The Argentine Congress so far has failed to make the necessary appropriation for the Tupiza extension, but national interests will probably cause this policy to be reversed and the funds to be provided. Most of the material for the prolongation of the Argentine railways to Bolivia has been bought by the Argentine department of public works in Europe. The Tupiza section will require considerable bridge work, and American manufacturers will have time, through inquiries at Buenos Aires, to inform themselves of the conditions under which it may be supplied. The material used in the prolongation of the Argentine lines to Bolivia has been shipped by

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one of the Atlantic steamer lines direct to Rosario and there transferred to the railway, and this will be the route for shipments for the Tupiza extension.

BENEFITS OF AMERICAN RAILWAY MATERIALS.

One result of the building of the Bolivian railway system by Americans is already seen, but the full effect will not be apparent for some time. This is in the solid construction of the lines and in the high class of material and of rolling stock employed. Heretofore American manufacturers have supplied locomotives and other rolling stock because of their ability to adapt themselves to the somewhat peculiar requirements of the railroads, few of which have been constructed according to the ideas which obtain in the United States. The construction usually has been of a cheap character, with roadbed, bridges, and equipment suited only to limited traffic. When the traffic grew there was no means of meeting it. Locomotives were able to haul only light trains; bridges were able to sustain only light locomotives. The American capitalists can charge themselves with some costly mistakes in the first stages of their Bolivian railway experience, but lack of substantial and adequate construction is not one of them.

The Viacha-Oruro line will serve as the model for the whole system. The roadbed is of the most solid kind, 60-pound rails are used, the bridge work is very substantial, powerful locomotives are already at hand, and both the freight and the passenger cars which are being unloaded are of ample size and strength. I mention these particulars because they show the class of railway material that hereafter will be most in demand in the Andes. European and native companies may not at first be willing to acknowledge that a radical change has taken place and may for a time longer cling to the small Belgian engine and the bobtail freight car, yet finally they will follow the American example.

LACK OF TRANSPORTATION FACILITIES A HINDRANCE.

In concluding this outline of the status of Bolivian railway construction, and in answering some queries regarding the prospective market for material, a word is necessary concerning the limitations to more rapid building since the funds are available. These limitations are the lack of transportation facilities for bringing in the material and the scarcity of labor. Had it not been for these drawbacks the American syndicate would have had the Viacha-Oruro line completed in 1907 and the Potosi branch well advanced by this time. Some improvement in transportation from Mollendo has been effected, but the getting of material into the interior of Bolivia must continue largely dependent on this single route, since the Antofagasta company is without the facilities to handle large quantities, even if the disposition existed.

The German syndicate in building the Arica line will be able to unload its rails and other material at Arica, which has a much better harbor than Mollendo, and thus utilize its own construction mile by mile; but in obtaining labor it is not likely to be better off than has been the Bolivian Railway Company. The Cholos, or half-breed Indian population of Bolivia, have shown little adaptability to railway labor, even with the inducement of good wages. Those who are

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not mine workers or employed in pack-animal transportation have small farms of their own. While the cultivation of these farms yields scanty returns, the natives have shown little willingness to abandon it even temporarily for the better-paying railroad work.

FOREIGN LABOR WANTED—THE OUTLOOK.

Various plans have been considered for obtaining sufficient labor. One suggestion is for Italians. These have been employed satisfactorily in building the northern Argentina extensions, though not in large numbers. Another plan contemplates Japanese immigration. While final measures have not been adopted, the indications are that a few thousand laborers will be secured outside of Bolivia.

Whenever the general situation, both as to the relocation of some of the proposed lines and the attitude of the Bolivian and the Antofagasta railway companies toward each other, is cleared up, and the system that is to be constructed is determined, the information will be conveyed by Minister Sorsby, who has heretofore reported so fully on the subject. In the pending situation no definite statement is possible. But for the reasons I have stated in the opening paragraphs of this report the existing complications are not likely to stop the actual railway construction or to lessen the quantity of material that must be bought, though advantage may be taken of dull times to secure concessions in prices. Manufacturers in the United States already know that all the purchases of material for the Bolivian Railway Company are made in New York City, and they are familiar with the sources of information there. They may find it advantageous, however, to follow the progress of the German syndicate's plans for the Arica line and the prospect of supplying it with bridge material and rolling stock.

PERU.

MORE RAILS AND MATERIALS NECESSARY—NEW PROJECTS CONTEMPLATED.

Special Agent Pepper, writing from Lima, sends the following information concerning the purchase of railway supplies and projected railway improvements in Peru:

Peru, notwithstanding monetary conditions, is likely to continue a fair buyer of rails and railway material during 1908, particularly if there is a reduction in the price. Orders given more than a year ago are now being filled and the material is arriving. By the time all of it is delivered the probability is that further material will be demanded, in order to complete extensions and improvements already in progress and possibly to provide for some of the new projects. The prospective purchases include rails, ties, bridge material, and rolling stock. The Peruvian railways are supplied almost entirely from the United States, particularly when locomotives and rolling stock are wanted, and the outlook has therefore a special interest for American manufacturers.

The heaviest buyer is the Peruvian Corporation, of London, which operates the state railways, under lease, and which, through an arrangement with the Government, is carrying out the prolongations and extensions of several of these lines. During 1907 the Peruvian Corporation received 14,000 tons of steel rails, 312,000 ties, and ma-

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terial for 4 bridges of from 85 to 230 feet in length. A large order for locomotives was filled in the previous year.

The Cerro de Pasco Mining Company, which completed and opened its branch line to the Gollarisquisca coal mines, in addition to the rails for that branch was a purchaser of rolling stock, its orders including 2 locomotives, 15 forty-ton steel hopper coal cars, 25 ore cars, 10 flat cars, 12 gondolas, 10 under-frame boxes, and 2 cabooses. Some of these orders have been filled and deliveries are now being made of others. The growth of traffic in the Cerro de Pasco district indicates that further additions to the rolling stock will be required.

RECONSTRUCTION OF AN ABANDONED LINE—ROAD TO BE EXTENDED.

The Peruvian Government has undertaken the reconstruction of the line in the south from the port of Ilo to Moquegua, which was partially destroyed during the war with Chile in 1881, and was then allowed to be covered over by the drifting sands. The rails were ordered for this reconstruction and part of the material has been delivered to the contractor who this month entered on the work.

Several of the short lines in the north running from the coast back to the Cordillera are being prolonged further into the interior, among them those from Pacasmayo and Salaverry. Rails and material for these prolongations are included in the purchases of the Peruvian Corporation. It is possible that these extensions will be continued and additional material be called for when the present work is finished. A short line is also likely to be built from Tumbes—though no contracts have yet been made for rails and materials for it.

When the prolongation of the Central Railway from Oroya to Huancayo is completed the extension will be continued to Ayacucho, Congress having authorized it, and by the time this work is ready to be taken up funds will be available for the purpose—though no rails or material have yet been ordered for this extension.

The bulk of the purchases by the Peruvian Corporation, aside from the rails needed for the new lines, has been for relaying the tracks on the Central or Oroya Railway, the main trunk of which from Callao to Oroya is 138 miles in length. The traffic which was developed by the Cerro de Pasco Company, in addition to the ore shipments and the freighting of mining supplies for the mines already in operation, found the Central with very inadequate facilities, and some attempt was made to enlarge them, though not on a commensurate scale. Since the system was placed in charge of the present experienced general manager, and practical railway operation was put in force, a larger volume of freight has been handled with the existing facilities and the promise is held out that the betterments which are now being made will provide for a further addition to the traffic. Assuming that this is so it does not follow that the improvements can stop with the heavy purchases of material already made.

NEW WORK NECESSARY ON THE CENTRAL RAILWAY.

Whether the Central Railway be electrified, as proposed, or not, many sections of it must be practically rebuilt and much additional rolling stock be supplied if the stockholders in the Peruvian Corporation expect to secure the return on their investment which is obtainable. The extension being made from Oroya to Huancayo under contract with the Peruvian Government will provide new

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business, and the increasing traffic from the Cerro de Pasco Mining Company and the other new mining and smelting enterprises has been indicated. The betterment of the physical condition of the line and improvement in operating methods, instead of satisfying the requirements, are more likely to show the need of a complete reconstruction. The difficulty of securing funds in London, where a blanket loan has been proposed, is said to be responsible for the incomplete measures for placing the Central in a position to handle the future traffic which it can command.

One positive step already has been taken for placing the line in a condition to meet traffic requirements. This is the reconstruction of the bridges and the replacement of some of the old ones by new structures. Several of the bridges on the Central are notable among the many marvelous engineering features of this railway, stretching across deep gorges from tunnel to tunnel or from one precipice wall to another precipice wall. Their maintenance always has been a source of deep concern and the weight of the trains passing over them has been carefully calculated. Two years ago when a large number of locomotives were bought in order to provide for the growing traffic it was found that they were too heavy for the bridges to sustain them. A contract was then made with the American Bridge Company to replace the existing bridges, one provision of the contract being that the old structures should be removed and the new ones erected without interrupting the running of the trains. The material is now on the ground, the bridge company's expert workmen are also on hand, and the work is beginning.

On the Southern Railway, which runs from Mollendo to Lake Titicaca, the long bridge and trestle at Arequipa are to be dispensed with by the construction of a loop. Other betterments requiring considerable material also will be made on the Southern.

THE PROPOSED ROAD TO THE AMAZON.

If the terms of the concession granted in 1906 for a railway to the Amazon by the way of Ucayali River were literally complied with, there would be an early demand for a large quantity of steel rails, rolling stock, and other material, since construction was to begin in August, 1908, and the road was to be finished in 1913. Though the concessionaire has a forfeit of $100,000 up it is not expected that this will be exacted if the actual construction is not begun at the date specified, in view of the condition of the money market in the United States where the capital was to be raised. But in view of its importance to the development of Peru, and the provisions already made, interests financially strong enough to carry out the project are pretty certain to come forward and undertake the construction of this railway.

The concession is for a standard-gage line which, starting from a point between Oroya and Cerro de Pasco on the existing railway, shall terminate at a point on the Ucayali River, suitable for steam navigation all the year round for vessels drawing at least 5 feet. A subsidy of £2,000,000, or approximately $10,000,000, is provided in 6 per cent bonds at par value to be delivered in half-yearly installments and in proportion to the number of kilometers finished in the same half year, the payment of the last installment to be made when the

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railway reaches the Ucayali. A grant of 7,500 acres of forest lands is also made for each kilometer of the railway built. A further provision is the privilege of placing steamers in all the Peruvian region of the Amazon and its tributaries and a grant of 5,000 acres of land is made for each steamer of 500 tons so placed. The subsidy bonds to be issued are guaranteed by the tobacco imposts, which, under a law passed in 1904, are set aside for railroad purposes. They now range from $900,000 to $1,000,000 annually.

FINAL SURVEYS DELAYED FOR A LINE TO THE UCAYALI.

Various projects have been proposed for reaching the affluents of the Ucayali at the small river landings of Puerto Bermudez and Puerto Victoria and the length of the railway line necessary to reach them has been estimated at 225 to 250 miles. The route indicated in the latest concession is known as the Perené, and is said to offer a somewhat better line to the Ucayali. Numerous reconnoissances and horseback surveys of the various routes have been made, but there has been no engineering location yet attempted. The concession requires that the final surveys shall be completed and submitted to the Government by the end of 1908, but this, like other provisions, may be extended.

The purpose of the Peruvian Government in providing for the construction of the line to the Ucayali is both political and commercial. It is desirous of securing prompt and regular communication with its Amazon port of Iquitos and of bringing the rubber product of all that Peruvian region out through Peruvian territory to the Pacific instead of having it go through Brazilian territory to the Atlantic, as is now done. There are, however, commercial advantages much more immediate than those relating to the rubber product. Enormous quantities of timber are required by the Cerro de Pasco and other mines, and with the development of the mines that is now going on the demand is growing. This timber is brought down from Puget Sound to Callao and then shipped over the Central Railway, the ocean and railway freights making it very expensive. Some of the preliminary surveys, it is stated, have shown that large tracts of timber lie along the route to the Ucayali, not more than 60 or 70 miles distant from the existing railway. These and other considerations render it probable that while purchases of rails and material may not be made during the current year, some orders may be given for delivery in 1909.

ANOTHER PROPOSED ROAD OVER THE CORDILLERAS.

The Ucayali concession also authorizes a line from the same point on the Cerro de Pasco Railway to a specified point on the coast, and if this line ever should be built there would be through direct communication from the Amazon's tributaries to the Pacific. This line would parallel the Central Railway and would compete with it. Though the Cordilleras would have to be crossed at an elevation equal to that of the Central, or nearly 16,000 feet, it is claimed that many of the engineering obstacles which that railway encounters could be avoided. The subvention for this line to the Pacific is fixed at £475,000, or $2,375,000, in bonds at the rate of $7,500 per kilometer. For reasons unnecessary to detail this project does not receive the

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same encouragement that is given the line to the Ucayali, though it has some stout advocates, who are said to be willing to engage in it.

The Peruvian treasury has husbanded its resources for railway building prudently, and while a number of paper projects receive consideration, much conservatism is shown in the enterprises actually entered upon. The gold standard is maintained and the loans contracted for railways and other public works have not been large, so that the credit of the Government is good, and if in the future it should seek to supplement the means obtained from the tobacco revenue by a small loan this probably could be obtained. However, such a plan is not now in favor and it is sufficient to know that the Government has the resources available to meet all the obligations that will be incurred in completing the extensions and prolongations now under construction or which have been authorized by the Congress. These measures mean that before the end of the year additional orders are likely to be placed for rails and material. I have already indicated the probability that in spite of the belief that the material now being delivered for the railway system of the Peruvian Corporation and for the Cerro de Pasco Company is sufficient, both these companies will be calling for additional material before another year begins. The 3 chief prospective purchases of railway material in Peru are stated in the memorandum which I forward to the Bureau of Manufactures. [Names of prospective purchasers furnished upon application.]

MEXICO.

NEW SCHEDULES GIVING UNIFORMITY OF FREIGHT CHARGES.

Consul W. D. Shaughnessy, of Aguascalientes, reports as follows concerning the new freight rates on Mexican railways, as agreed upon by the parties interested, and which will take effect on April 1, 1908:

During the last three months the Mexican tariff commission has been investigating the proposed increases in freight rates on ore shipments, which have been advocated by the principal railroads of Mexico and strongly contested by the shippers.

A uniform increase of charges, to become effective April 1, 1908, has been agreed upon by the railroads, smelting interests, mine owners, and other shippers, approved by the tariff commission, and referred to the department of communications for final approval. No party can attempt to reduce these rates without violating their agreement. There have been protests made by the Mexican Central and Mexican National railroads against the commission because of the date for the rates to become effective and of its recommendation to the department of communications that the rates on concentrates remain the same. The mining interests contend that, in view of the ores which have been mined on the basis of the old rates and now await shipment, an opportunity should be afforded to place them at the smelters.

INCREASE ON ORES, HOW COMPUTED.

The new ore tariff, proposed to become effective April 1, on the Mexican Central and Mexican National railroads, makes an increase of 10, 20, and 30 per cent on the ore tariff now used by the Mexican National, according to the different classes. The ore is divided into three classes: Less than $25 Mexican in value (Mexican dollar=50

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cents American currency); over $25 and not exceeding $50; and over $50—i. e., ores of third class, $25 or less, bear an increase of 10 per cent; ores of second class, not exceeding $50, 20 per cent, and ores of first class, over $50, an increase of 30 per cent. The valuations are arrived at on a fixed basis of value for the different metals, from the smelter assays, this basis being fully shown in the railway tariffs, which are as follows: Silver at $36.50 per kilo (kilo=2½ pounds); gold at $1.60 per gram; copper 30 cents per kilo. Lead at $1 per unit of 10 kilos, when the London quotation is £15 per ton of 2,240 pounds. For each change of 1 shilling there should be added or deducted accordingly $\frac{4\frac{1}{2}}{1000}$ of 1 cent per kilo, or $\frac{45}{1000}$ of 1 cent per unit of 10 kilos. Lime and iron at 15 cents per unit of 10 kilos.

From the total of the above values added together shall be deducted the total of the following items: What is known as insoluble matter, as usually determined at the commercial smelting works, shall be charged for at 20 cents per unit of 10 kilos. If over 5 per cent of sulphur is contained in the ore, such additional percentage shall be charged for at 50 cents per 10 kilos. A further deduction shall be made of $12 per 1,000 kilos.

MATTE RATES AND RATES BY CLASSES.

The copper matte situation will not be affected, as was erroneously stated in my previous report in Consular and Trade Reports, the rates being as follows (kilometer=0.62 mile):

Aguascalientes from—	Kilometers.	Copper matte rates.	Aguascalientes from—	Kilometers.	Copper matte rates.
San Luis Potosi	225	$3.18	Torreon	551	5.51
Cavitas	231	3.21	Stalforth	923	12.18
Salamanca	253	3.32	Rosario	944	12.83
Celaya Junction	296	3.53	Terrazas	1,064	7.84
Tlaxcoapan	521	5.20	El Paso, Tex	1,386	7.84

The freight rates in Mexico are on two bases: The regular class rates, and those known as specials. Class rates are given by distances on "local freight," and the specials, which cover only carload shipments, are given by distances and between stations. The increased rates which went into effect on the Mexican Central Railroad on August 9, 1907, are the same as those in effect on the National Railroad, the increase being from the third to the twelfth classes, inclusive. The actual rates for the twelve classes, in Mexican currency, per metric ton are given as follows, the minimum distance being 15 kilometers, with the exception of the International, on which the minimum distance is 1 kilometer:

Railroads.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Mexican Central	$0.90	$0.86	$0.82	$0.78	$0.74	$0.70	$0.66	$0.62	$0.57	$0.53	$0.50	$0.45
Mexican National	.90	.86	.82	.78	.74	.70	.66	.62	.57	.53	.50	.45
International	1.50	1.35	1.29	1.21	1.14	1.07	1.01	.96	.90	.84	.80	.75
Interoceanic	.90	.86	.83	.80	.76	.73	.70	.66	.62	.59	.56	.53
Hidalgo	.90	.86	.83	.70	.75	.71	.68	.64	.60	.56	.53	.49
Ramal de Matehuala	.75	.72	.69	.65	.61	.59	.55	.51	.48	.44	.41	.38
Michoacan y Pacifico	1.05	1.01	.97	.93	.89	.85	.81	.77	.72	.68	.65	.60
Veracruz al Pacifico	1.20	1.13	1.06	.99	.93	.86	.79	.72	.65	.59	.52	.45
Tehuantepec National	1.20	1.13	1.06	.99	.93	.86	.79	.72	.65	.59	.52	.45

At the same time several special rates were raised, the increases being on wheat, corn, cotton seed, alcohol, tequila, wines, etc., and the

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minimum carload was increased from 10,000 to 15,000 kilos (10 to 15 metric tons). Native products are charged for according to a differential tariff, which is lower in proportion to the charges on imported goods governed by the general tariff.

NEW ROAD TO BE BUILT.

CONSTRUCTION OF ZACATECAS AND ORIENT LINE SOON TO BEGIN.

Consul Thomas W. Voetter, of Saltillo, advises that it is reported that construction is to begin shortly upon the Zacatecas and Orient Railroad, concerning which he says:

This road is projected to run from Camacho station of the Mexican Central eastwardly via Mazapil to Gomez Farias station on the National of Mexico, about 100 miles. It is to be made standard gage, so that equipment from connecting lines can be used. Ultimately it is planned to extend the road to Linares on the Monterey-Tampico line of the Mexican Central. There is no Federal subsidy. The country through which the line will pass has considerable mineral resources, now undeveloped. There are also possibilities of developing agricultural resources, but extensive irrigation systems will be required before any tonnage can be secured from this source. [The names of the concessionaires of the foregoing line and of a business man interested in the development of the territory it will traverse may be obtained from the Bureau of Manufactures.]

GUATEMALA.

NEW LINE BETWEEN ATLANTIC AND PACIFIC—TRADE POSSIBILITIES.

Consul-General William P. Kent, of Guatemala City, reports that on January 19 there occurred at the capital of Guatemala the formal ceremonies attending the installation of traffic over the completed line of the Guatemala Railroad. Its commercial importance is shown by the consul-general as follows:

The event was attended by great popular rejoicings, by official ceremonies, and by the presence of Gen. George Davis, special envoy of the Government of the United States. Nothing has ever occurred in Guatemala of greater national significance than the completion of this railroad, upon which is based the expectation of great internal development, closer relations with the United States, and a widely expanded trade with all countries. Its construction has been a great feat of engineering and is largely the fruit of American engineering, capital, and skilled labor.

About 25 years ago the Government of Guatemala undertook the construction of the road as a national enterprise, but after building 133 miles it turned the line over to American capitalists, who have now brought it to a successful conclusion.

AID TO AMERICAN COMMERCE.

It is impossible to dwell with too much emphasis upon the advantages to American exporters that arise with the opening of this railroad. Its length is 196 miles, and it connects Guatemala City, the capital of the Republic, with Puerto Barrios, on the Atlantic coast.

The ships of the United Fruit Company, at present plying weekly to and from New Orleans, accomplish the voyage usually in five days.

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It is expected that a faster line will soon be placed in service and the voyage will then be reduced to three days. When this is accomplished it will be possible to journey from Guatemala City to New Orleans in five days, and to Washington and New York in seven. No exporting country will hereafter possess advantages of transportation or nearness to this market compared with those of the United States.

The Guatemala Railroad connects at the capital with the Central Railroad, which itself connects with the ports of San Jose and Champerico, on the Pacific coast of Guatemala. The distance from the capital to San Jose by the Central is 75 miles. Thus a third transcontinental line is now completed across Central America, connecting by a railroad of 271 miles in length the waters of the Atlantic and the Pacific.

UNITED KINGDOM.

INCREASE IN MILEAGE—RECEIPTS AND EXPENDITURES.

Consul-General Robert J. Wynne, of London, furnishes the following statistics concerning the railways and tramways of the United Kingdom:

The total railway mileage of the United Kingdom at the close of 1906 amounted to 23,063, an increase of 216 miles over that of the previous year. The paid-up capital increased from $6,363,005,000 in 1905 to $6,434,415,000 in 1906. The number of passengers carried on the several lines in 1906, not including persons holding season tickets, was 1,240,347,000, from whom fares amounting to $249,413,888 were collected, against 1,199,022,000 persons carried and $243,600,600 collected in fares in 1905. The quantity of merchandise conveyed in 1905 aggregated 461,139,000 tons, from which the receipts amounted to $282,057,945, against 488,790,000 tons and $291,971,085 in receipts in 1906, making the total gross receipts from all traffic $525,658,545 in 1905 and $541,384,965 in 1906. To these sums must be added the receipts from miscellaneous sources, amounting to $41,996,550 in 1905 and $44,754,690 in 1906, which brings up the total gross receipts to $567,655,095 and $586,139,655 for the two years, respectively. The total expenditures in 1906 amounted to $363,989,270, an increase of $13,665,955 over those of the preceding year.

At the close of 1906 there were 2,240 miles of tramways in operation in the United Kingdom, with a paid-up capital of $289,692,085, against 2,117 miles and $257,507,050 in capital in the corresponding period of 1905. The number of passengers carried on the lines in 1906 was 2,236,012,777, an increase of 168,099,551 over the previous year. The gross receipts in 1906 amounted to $53,215,890 and the expenditures $34,178,815, against $49,585,130 in receipts and $32,825,245 in expenditures in 1905.

SHEFFIELD TRAMWAYS.

MUNICIPAL OPERATION OF STREET CAR LINES.

Consul Charles N. Daniels, of Sheffield, reports that in a recent lecture by the general manager of the Sheffield tramways the following facts and figures were given:

Sheffield was the first municipality to own its tramways; not to own and operate them, Huddersfield claiming that distinction, whereas Sheffield con-

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structed the tramways and leased them to a company. The city corporation began working them as a municipal undertaking July 11, 1892, and in nine years had increased them to four times their original length. There are 268 passenger cars, 100 being covered top cars, 110 open top, and 58 single-deckers; a new car costs $3,800 and weighs about 10½ tons.

The fact that the department has direct control of the generating station enables it to obtain its power cheaper than any municipal tramway purchasing its power. While the power costs Sheffield 1.316 cents per unit, Manchester pays 2.518 cents, Bradford 2.28 cents, and Liverpool 2.354 cents. At the Manchester rate the cost to Sheffield would be $156,340 more than at present. Seventy-three miles of trolley lines are in use, 25 miles of which have been renewed during the past year.

The average number of cars working each day approximated 185. The first car out of the barn is at 4.10 a. m.; last car in at 12.58 a. m. On an average each car runs 117 miles per day. Most of the accidents are trivial, and the principal cause is passengers entering and leaving the cars while in motion, the majority of those injured being women. In one week 18 passengers were injured owing to this practice, of whom 12 were women. Last year the compensation paid for injuries was $6,345, or 93 cents per 1,000 miles run, or about 8 cents per 1,000 passengers.

WORKING EXPENSES AND REVENUE.

The entire system furnishes regular employment for 1,500 men, and the weekly wage bill is $12,165. During the time of municipal management the hours of labor have been reduced 40 per cent, while the rate of wages has been increased for motormen 125 per cent and for conductors 200 per cent.

In 1907 the total number of miles run was 7,000,000; passengers carried, 74,000,000; receipts, $1,396,542; working expenses, $827,220; average length of 2-cents stage, 2½ miles. The receipts per car mile run are 19½ cents and the total working expense a fraction under 12 cents, leaving 7½ cents to meet interest, sinking fund, and all other charges.

The average number of journeys made per head of the population is 166 per annum; the average fare paid is 2.8 cents. Compared with other towns Sheffield does not stand very high as regards miles of track laid down, the number of inhabitants per mile of track in Sheffield being 12,450, as compared with 6,100 in Bradford, 7,923 in Leeds, 8,344 in Manchester, and 11,900 in Glasgow. With reference to the last set of figures it may be stated that while Glasgow has a population of 798,778 and an acreage of 12,796, Sheffield has a population of 450,000 and an acreage of 23,662.

The tramway permanent way has cost since 1896 $2,126,442, a large amount of which has been spent in paving a portion of the street surface on 35 miles of street. In addition to $53,651, which is paid by the department in general district and poor rates, a further tax is made upon the tramways for street improvements, the tramways paying interest and sinking-fund charges on $1,315,913 on that account at the present time.

BRITISH INDIA.

LOWER CHARGES MADE FOR MOVEMENT OF STOCK FOOD.

Consul-General William H. Michael, of Calcutta, makes the following report on the reduction of freight rates on the railways of British India for cattle feed, with some extracts from the recent report of the East Indian Railway:

The rates were 2 annas (4 cents) per ordinary wagon (car) per mile and double this rate for bogie wagons on the standard gage railways, and on the meter gage lines 2 annas (4 cents) for the first 50 miles, 12 annas (24 cents) for the next hundred miles, and 1 anna (2 cents) for the additional distance per ordinary wagon per mile, with double these rates for bogie wagons. It was a source of considerable satisfaction that the railways generally agreed to this.

The government of India, however, realizes that even greater assistance than that which is secured by these specially reduced

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rates is necessary in order to effect the movement of fodder in quantities sufficiently large to provide for the safety of the cattle within the famine area, and have decided, with immediate effect, that freight on consignments of fodder (excepting fodder for the army department) booked to stations in the provinces mentioned shall be recovered from the consignee at the rate of one-half an anna (1 cent) per four-wheeled wagon per mile and 1 anna (2 cents) per bogie wagon on consignments, and that the balance of freight calculated at the special reduced rates agreed to by the railways shall be paid by the government.

The Punjab Blue Book states that East Indian Railway, and other lines, and steamboat lines, have reduced rates on carrying cotton piece goods and yarn, kerosene oil and sugar between points in the Punjab and Calcutta. The value of the exports from the Punjab by rail and river for 1906–07 is stated to be $72,943,465, and the value of imports for the same year to be $74,568,150.

EXCELLENT SHOWING MADE BY AN EXTENSIVE TRUNK LINE.

According to the half-yearly report of the East Indian Railway, the company has in operation 2,206½ miles of road, of which 1¾ miles are quadruple, 2¼ miles are triple, 534¾ miles are double, and 1,668 miles are single line. The total length is 41½ miles more than it was at the previous half year, due to the opening on April 15, 1907, of the Kurjahlipur Branch. In addition to the above, the Delhi-Umbala-Kalka, 162¼ miles, South Behar, 78¾ miles, and Tarakessur, 22¼ miles, were worked by the company, making a total length of 2,469¾ miles.

The total capital outlay was $185,616,730, giving an average cost of $80,675 per mile on 2,206½ miles. Since the last report there has been a further issue of debenture stock to the extent of $10,000,000, bearing interest at 3½ per cent, at a discount of 5 per cent. The capital expenditure during the past half year was $2,412,819, of which $2,173,490 was for rolling stock and works for the open line. The gross receipts during the same period amounted to $14,688,920, and the working expenses to $5,379,751, leaving $9,309,169 as the net earnings. After paying interest and other charges against net earnings, there was a surplus of $3,539,447. The gross receipts are the highest on record, being an increase of $554,972 over last year's figures.

Of the expenditures, salaries and office expenses amounted to $844,690. Of this, general administration cost $34,248; engineering, $193,675; locomotive, $147,137; carriage and wagon, $41,113; traffic, $180,443, and audit and account, $79,140, the balance being distributed in other directions.

The earnings are about as much now as before the strike. For the week ending December 14, 1907, the earnings amounted to $557,333, against $544,335 for the same period in 1906.

NORWAY.

PROJECTS WHICH ARE LIKELY TO BENEFIT AGRICULTURE.

Consul B. M. Rasmusen, of Stavanger, writes of the need of improved inland transportation in Norway:

Emigration has reduced the population of this district to such an extent that necessary help for farm labor can no longer be obtained.

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While people are thus leaving for other countries, large tracts of land that need only to be cleared and drained lie untouched, owing to the scant railroad transportation facilities.

The railway from Stavanger to Egersund, constructed about twenty-five years ago, gave a start to the reclamation of waste land, which has resulted in the transformation of Jaederen into one of the chief agricultural districts of Norway. The construction of an electric railway from Haugesund to Odda, a distance of 75 miles, which is now under consideration, would undoubtedly prove of similar benefit to that section. Another transportation project is the organization of automobile routes from Stavanger to adjacent points. This consulate is ready to furnish further information as these plans develop.

WATERWAYS.

CANADA.

FURTHER STEP IN THE GEORGIAN BAY CANAL ENTERPRISE.

Consul A. G. Seyfert, of Collingwood, advises that the engineer in chief of the Georgian Bay Canal survey has presented to the Dominion Parliament an extensive report of the year's work, which was largely confined to the French River between Georgian Bay and North Bay, a distance of 31 miles. The consul summarizes the report thus:

The approximate estimated cost of the canalization of the French River is $14,000,000. The plan of the Georgian Bay Canal contemplates a ship canal of a depth of 22 feet, and provides for the creation of three reaches between the Georgian Bay and Lake Nipissing by means of locks and dams, the lift of the locks varying from 22 to 24 feet.

The report also contains a general review of the whole scheme from Georgian Bay to Montreal, a distance of 440 miles. It is pointed out that the ascent from Georgian Bay to summit level is 99 feet, while the descent from summit level to Montreal is 659 feet, making a total lockage of 758 feet. This would be overcome by 27 locks, varying in lift from 10 to 50 feet. The report points out that the proposed canal would mean a great saving in distance from the interior to the British market. From Fort William to Liverpool via New York is 4,929 miles, while via the Georgian Bay Canal it would be only 4,123 miles, a saving of 806 miles in favor of the route via the Georgian Bay, Ottawa, and Montreal. The route is also described as practically a chain of deep lakes or wide river expansions, so that the construction of the proposed canal would involve the canalization of only 275 miles, leaving 357 miles of free navigation.

TRANSPORTATION ECONOMY—WATER POWER.

It is computed that the route will be about two days faster for each trip from the head of the lakes to an ocean port than any other route, apart also from its advantages in having an enormous superiority as to carrying capacity. This would naturally have a great tendency to reduce transportation rates on grain and other products, and in case of congestion at the terminal elevators at Port Arthur and Fort William, before the close of navigation, the great depth of

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the waterway would enable the largest lake boats to reach an ocean port fully loaded without breaking bulk.

The geographical position of the waterway is also excellent, as it will be independent of all international waters, being fed at its summit by waters well within Canadian territory. Its northern latitude would also be of some advantage for the transportation of perishable foodstuff during the hot season, as compared with the southern route through Chicago and the Mississippi River. The canalization of the Ottawa River will also be of distinct benefit by creating practically unlimited water power more than half developed, which will be available for all kinds of industries and from which a revenue could be derived.

One objection made by some of the opponents of the project, that it would freeze up sooner than the St. Lawrence, is met and controverted; but it is pointed out that even if the average closing of Lake Nipissing is two days earlier than Montreal, navigation could easily be maintained by a couple of steel-clad tugs.

COLOMBIA.

SUBSIDIES SUBSTITUTED FOR EXPORT BOUNTIES ON MAGDALENA RIVER.

Consul Isaac A. Manning, of Cartagena, furnishes the following information concerning the new regulations governing the carrying trade on the Magdalena River in Colombia:

After a brief trial of the export bounties on coffee and other articles paid to the transportation companies doing the carrying trade on the Magdalena, the Government has suspended the payments, and in lieu thereof the companies will receive a subsidy of $1,000 gold per round trip between Barranquilla and Calomar and El Dorado on the upper river, for which they will give a reduction of freight rates on certain articles for export, which come almost altogether down that route.

The freight rates up river, from Barranquilla and Calomar to the Bodegas de Bogota and Caracola are $17 and $15.75 per metric ton, respectively, and from the latter places down to Barranquilla and Calomar $12.50 and $11.50 per ton, with relative reductions to intervening points.

All classes of machinery of an industrial or agricultural nature or for mining uses, all kinds of tools and implements, natural and chemical fertilizers, wire fencing, iron or metal roofing, water pipe, hydraulic cement, lubricating oils, live plants, and sacks for coffee must be carried at a discount of 25 per cent from the above rates, while dried fish and soap, candles and cotton and woolen goods manufactured in the country shall be carried at a discount of 50 per cent.

Of the "down river freight" coffee and hides for export must be carried at a discount of 25 per cent, and also sugar. Cotton, vegetable fibers, flour, potatoes, corn, rice, wheat, and small fruits, sent to the coast for export, as well as military supplies, enjoy a discount of 70 per cent from the tariff rates.

First-class passenger from Barranquilla or Cartagena to the Bodegas de Bogota $32, with relative reductions to intervening points.

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For a stateroom on the steamers there is a surcharge of 20 per cent. Second-class passengers pay two-thirds of the regular tariff and third class or "deckers" pay one-third. First-class passengers are allowed 330 pounds of baggage, second class 165 pounds, and third class 110 pounds.

BICYCLES IN GERMANY.

REGULATIONS GOVERNING THEIR USE ON THE ROADS IN BADEN.

Consul E. Theophilus Liefeld, of Freiburg, furnishes a copy of the regulations concerning the use of bicycles on public roads and in public places in the Grand Duchy of Baden, which went into effect January 1, 1908. A brief summary follows:

Every bicycle must be provided with a good working brake; a clear-ringing bell must be used as a warning signal; and a bright-burning lantern with colorless lens which must be used when it is dark or during a heavy fog. The cyclist must have on his person a card of identity showing that he has a right to ride a wheel, which he must exhibit upon request to the proper authorities. The card of identity costs 23.8 cents. Foreigners are also obliged to carry cards of identification which are good all over Germany.

The speed of riding is to be controlled so that there will be no danger of accidents and collisions. When riding on roads which are obstructed from sight or in dense fogs, turning from one street into another, passing over narrow bridges, as well as riding down hill, etc., the cyclist must ride cautiously and slowly. In all these cases he is not permitted to ride without holding the handle bars, or removing his feet from the pedals. The bell is to be rung at all places obstructed from the sight of the wheelman. The passing around of vehicles is forbidden, if it disturbs traffic in any way or is liable to frighten animals.

The riding of bicycles, except upon special paths for wheelmen, is permitted only upon such roads as are used for general traffic; the wheelman must not ride on embankments or sidewalks, intended for pedestrians, if such are at a higher level than the roadway. Special paths for wheelmen can be closed at any time by a police ordinance. Racing is not permitted on public roads, and can be allowed only upon special permission of the authorities.

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FINANCIAL.

MUNICIPAL ADMINISTRATION.

GERMANY.

FREEDOM OF MUNICIPALITIES UNDER THE LAW OF THE EMPIRE.

The following information concerning gas plants in the cities of Saxony is furnished by Consul George Nicolas Ifft, of Annaberg:

Under German law municipal corporations may and do engage in almost any kind of business which the council may regard as for the welfare of the municipality, ranging from the ownership and operation of railroads, street railways, mines, smelters, and factories, to mercantile establishments, bakeries, and butcher shops; or they may, and often do, fix the price at which bread, meat, beer, or any other commodity, regarded as among the necessities of life, may be sold. These powers are often invoked to prevent monopolies or the raising of the price of foodstuffs, through combinations of tradesmen. It is noteworthy that such powers are, in the main, wisely used, a fact due largely to the habit of selecting city, town, or village councilmen from the ranks of men of large affairs and independent means. Also, in a measure, to the fact that a councilman's first term is for six years, and that a reelection is for life.

RESULTS OF MUNICIPAL OWNERSHIP.

Municipal ownership, however, even in Germany, is not without its critics, the burden of the criticism being that similar conditions do not produce similar results, or that the management of the municipal plants seems to aim at the earning of large profits, rather than the general welfare, through the delivery of necessities at cost prices. The municipal gas plants of the principal cities of the Kingdom of Saxony may be cited as examples along both these lines of criticism.

As early as 1833, 1836, and 1844, Dresden, Leipzig, and Berlin, respectively, had gas plants, but for a number of years thereafter the gas plants in Germany very generally remained in the hands of private parties, and mostly in those of foreign corporations. When the gas industry began to find a place in even the smallest villages, and to become a more and more important economical factor in community life, these plants were taken over by the cities. Existing plants were either bought, mostly at large prices, or entirely new plants were built, until to-day gas plants owned or controlled by the municipalities are the rule, and private gas plants the rare exceptions.

PRODUCTION OF GAS AND BY-PRODUCTS.

There is a general uniformity in the construction and operation of German municipal gas plants, brought about through the thor-

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ough organization and frequent meetings of gas superintendents and gas experts. Reasonable uniformity as to results should follow, but the complaint is that such results are not obtained; that, even in neighboring cities, where conditions are practically the same, results differ widely, as will be seen from the following statement showing the production of gas coke, and tar from a metric ton of coal in the gas plants of the principal cities of Saxony:

City.	Gas.	Coke.	Tar.
	Cubic feet.	*Pounds.*	*Pounds.*
Chemnitz	10,519	1,294	152
Dresden	11,915	1,296	139
Leipzig	10,413	1,450	123
Plauen	9,954	1,285	126
Zwickau	11,519	1,506	154

Leipzig and Dresden are cities of more than 500,000 population each, Chemnitz 250,000, Plauen 105,000, and Zwickau 70,000.

COST TO CONSUMERS AND COST OF PRODUCTION.

Most of the Saxon city gas works earn handsome revenues over and above reasonable interest on the money invested, which lends some color to the criticism that they are operated to make money rather than for the purpose of furnishing the cheapest possible gas supply. Another frequent complaint is that their management is even more autocratic than when they were in the hands of private corporations.

For the larger Saxon cities the cost of gas to the consumers, the cost of production, and the profits thereon, per 35.3 cubic feet, are given as follows, in American cents:

City.	Cost to consumers for—		Cost of production.	Profit.
	Light.	Cooking and motors.		
	Cents.	*Cents.*	*Cents.*	*Cents.*
Dresden	4	8	2.9	1.5
Leipzig	4½	8	3.9	1.0
Plauen	4½	3½	4.2	.6
Zwickau	4½	8	1.8	1.5

These prices, compared with those of some of the other German cities, are high. In Düsseldorf and Eberfeld, for example, gas for cooking is supplied at 2 cents per 35.3 cubic feet. More noteworthy, however, are the differences in the cost of production—as for instance, 4½ cents in Plauen and only 1.8 cents in Zwickau. These are neighboring cities of about the same size. Other parts of Germany show even greater differences. In Kiel the excess of earnings over cost of production is only one-half a cent, while in the neighboring city of Hamburg it is 1.9 cents.

DENMARK.

A GRADUATED INCOME TAX IN THE CITY OF COPENHAGEN.

Mr. M. F. Egan, American minister to Denmark, furnishes a number of translations from Danish newspapers in regard to certain

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important changes proposed in taxes in the city of Copenhagen. The first, from the Nationaltidendo, reads as follows:

It is proposed to introduce a communal property tax for the first time in the history of Copenhagen, and in place of the present income tax on a fixed scale an income tax on a rising scale, whereby the tax on incomes from 800 to 4,200 kroner (kroner 26.8 cents) is reduced. The amount lost on the above amounts, together with the surplus in the proposed taxation, is to be paid by those having incomes over 4,200 kroner. The scale is as follows:

Amount of income.	Rate of taxation.
Under 900 kroner	¼ per cent.
From 900 to 2,000	¼ per cent of the first 900 and 2¼ per cent of balance.
2,000 to 4,000	1.6 per cent of the first 2,000 and 3.2 per cent of balance.
4,000 to 10,000	2.4 per cent of the first 4,000 and 3.4 per cent of balance.

This continues to increase until the maximum is reached, which, for incomes of 100,000 kroner and above, is 4.4 per cent of first 100,000, and 5.6 per cent above that sum. However, this does not give the final tax. It is proposed to have a moving scale of taxation of wide extent. The town council may raise the property and income tax by one-fifth of the average tax during the last three preceding years.

The Politiken newspaper has the following to say:

The report of the committee on this important matter is a little book of about 50 pages. The proposed income and property tax will give an additional yield of 650,000 kroner. Of this sum 230,000 kroner is derived from the income tax and 420,000 from the property tax. A rising scale is introduced, according to which all those persons whose incomes are less than 4,200 kroner a year will pay less in taxes than heretofore; those who have an income up to 7,000 kroner pay a small increase in tax; those who have an income of 10,000 kroner pay only 50 kroner more than now. Thus the whole burden of the new taxation will fall upon the large incomes.

The town council is given a certain amount of freedom in determining whether the full amount of the taxes shall be claimed every year or not. It may be increased or decreased, according to the state of the finances of the city. If, for instance, should the budget of the city demand a yield of 5,500,000 kroner as income and property tax, and should the present scale only yield 5,000,000, then they may raise both the income and property tax 10 per cent.

Another Copenhagen journal, the Berlinsketidonde, states:

In 1906 the number of taxpayers in Copenhagen was 87,661. Of these, 81,919 will pay a less tax if the report is accepted, while the rest, namely, 5,742, will pay the whole increase in taxation of about 230,000 kroner. They will also pay the decrease in the tax of the 81,919, and will thus bear the whole additional burden.

ENGLAND.

SHEFFIELD'S HEAVY DEBT LOWER THAN SOME OTHER CITIES'.

Consul Charles N. Daniels, writing from Sheffield, says that the growth of municipal trading by the cities of England during the last decade or two has been accompanied by a steady increase in municipal indebtedness, some of the facts of which he gives:

Sheffield for some time has had the matter under consideration by a special committee of the council, and its recent report shows that the outstanding loan debt of the city at the end of the financial year was $43,063,445, after deducting sinking fund on hand. This, for a city of not more than 450,000 inhabitants, is a considerable indebtedness; the committee congratulate themselves, however, that big as

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this city's debt is the amount is $19,464,000 less than that of Leeds, $29,196,000 less than Liverpool's, $38,928,000 less than Birmingham's, $43,794,000 less than Glasgow's, $68,124,000 less than Manchester's, and $102,186,000 less than London's. During the year the debt increased $1,206,768, the capital expenditure during the same time being $1,051,056. Of this amount nearly one-half, $491,466, was spent in education. The other principal items were: District rate account $160,578, dwelling-house improvement account $83,722, water $107,052, tramways $63,258, electric lighting $102,186.

The income from rates during the same period was $2,755,876, the expenditure $2,880,696. Taking the corporation as a whole, the payments for the year were about $8,515,500.

The income continues to increase; the following principal items for the year being compared with those of the preceding year:

	Present income.	Previous year.
Water rate	$782,861	$749,788
Tramways	1,379,155	1,242,828
Electric supply	338,021	301,555
Markets	155,308	150,398

As the capital expenditure has not been heavy the corporation borrowing has not been as large as in recent years. All the money required has been secured at 3½ per cent. During the year a general perfecting of the financial system has been inaugurated, which enables Sheffield to congratulate itself that in matters of finance it is not as bad as are many other cities.

FRANCE.

MUNICIPAL OPERATIONS GOVERNED BY THE CIVIL CODE.

Consul Chapman Coleman furnishes the following information concerning the public service in Roubaix:

The general and special laws governing municipal ownership and the operation of the public services (gas, water, electric light, street car, and telephone) in Roubaix, as well as in all other French cities, are contained in the body of the laws of France, known as the "Civil Code."

The municipality of Roubaix, like other French cities, conducts the services in question, or empowers private companies to conduct one or more of them, under concessions based upon contracts entered into, in accordance with the provisions of the general and the special laws of France, which govern such action.

The laws governing taxation of public service companies and of public services operated by municipalities are, in either case, those contained in the body of French laws. Such dues and compensation as accrue to the municipality from private companies operating public services, in consideration of concessions, are fixed by the rules, regulations, and general provisions of the contract entered into between the municipality and the particular company.

The city telephone service is conducted by the Government of France, in connection with the French post and telegraph services. The administrative authorities of that service have, however, declined to furnish a report respecting it. The following meager data in regard to the service, obtained elsewhere, may be of some interest:

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The service is performed by 4 male and 63 female clerks; in 1906 the number of new subscriptions was 85, of withdrawals, 30; the total number of subscribers at the end of the year was 1,351, and the total receipts for the year $44,074.

BELGIUM.

NO STATE LAWS GOVERNING MUNICIPAL CORPORATIONS.

Consul-General Ethelbert Watts, of Brussels, furnishes the following information concerning the manner in which the public services are conducted in that city:

There are no state laws in Belgium governing municipal corporations. There are in Brussels nine separate municipalities, which are autonomous, and they, if approved by the provincial government, have the right to concede to any private person or company any public service within their respective limits. The municipal authorities, being elected by the taxpayers, are accountable only to them. The question has been brought before the chamber of deputies, and a law is pending which would restrict the rights of municipalities.

The municipal ownership and the operation of public services—such as water, gas, and electricity—are not governed by any special laws, except those made by the municipalities themselves. The telephone service is operated by the Government. The Government has jurisdiction over tramway companies, because the service is an intermunicipal one, and it would be impracticable to obtain concessions from the various municipalities through which the cars run, therefore only the Government has the right to grant a concession.

There are no laws governing the taxation of public companies or of public services operated by municipalities, these taxes being fixed by the municipalities themselves.

BANKING IN SPAIN.

AN AMERICAN BANK NEEDED—A MADRID BUSINESS MAN'S STATEMENT.

Théophile Bénard, a prominent business man of Madrid, sends the following interesting letter concerning "the banking facilities of Spain, and how they can best be improved, with a view to the development of American trade and other interests:"

Putting aside the private bankers, established in all the chief towns, it may be said that real banking corporations only exist in three cities or centers of intensive traffic such as Barcelona, a considerable focus of industry and trade; Madrid, the national capital the center of Spanish finance and administration; and Bilboa, the chief export harbor for iron ore. Those three cities possess banks of a certain importance, either Spanish institutions or agencies of French, German, and Argentine banks. In addition to the three cities mentioned there are small banks in Valencia, a considerable export harbor for fruit; Jerez, a center for wine; San Sebastian, a seaside resort possessing moderate industries; Santander, Gijon, Burgos, Valladolid, and Pamplona. These include the totality of our banking corporations, excluding of course the Bank of Spain, a chartered bank of issue, with branches in each provincial capital.

To sum up, the Barcelona district (east) holds ten banks, with a total share capital of $11,000,000; net profits, $680,000; deposits,

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$96,000,000. Madrid (center), 4 banks with a total share capital of $15,300,000; net profits, $1,600,000; deposits, $57,000,000. Bilbao, Asturias, etc. (north and northwest), 10 banks with a total share capital of $9,600,000; net profits, $1,400,000; deposits, $316,000,000. The "deposits" include money and securities. Besides, the Crédit Lyonnais has established 5 agencies; the Deutsche Bank 2 agencies (Deutsche überseeische Bank); the Dresdner Bank 1; the Banco Español de Rio de la Plata 1—all those agencies being very prosperous and of considerable help to the trade of their respective countries.

Most of the Spanish banks have been created since the Hispano-American war, and though there is nothing to be said against the soundness of their constituent elements, it is the general belief among dealers of all classes that these banks look more for their profits toward speculations in gold and loans on securities than to giving facilities in discount, advances on consignments, warrants, document bills, documents credit, etc. Therefore, it seems obvious that, considering only the internal traffic in Spain, there is room for additional banks, whose main efforts would be directed to reaching medium or small dealers of good reputation and situation, who are now actually deprived of reasonable facility or credit in any of the markets.

DEVELOPMENT OF TRADE WITH SPAIN.

Looking now to the development of American trade with Spain, if I express the conviction that the American interests require necessarily and promptly the establishment of a special American bank for Spain, I shall but confirm similar opinions given by numerous United States consuls with respect to their respective posts all over the world, and made public in Daily Consular and Trade Reports. As a rule, American manufacturers and merchants grant no credit at all to foreign purchasers. This policy is undoubtedly a sound one to a certain extent, but on markets where the competition is keen and constant, where German merchants grant credits ranging from three to twelve months, sometimes more, I see no other means of extending American business than by accepting the risk involved in the grant of credits of at least three months, or establishing a bank with a proper local organization which will undertake to accept the risk.

It seems to me that such a bank need not be started with a large amount of capital, but should, on the contrary, start modestly, following the example of some foreign institutions which might be mentioned, which began very small and have since become considerable corporations. The bank should be created in connection with the chief American exporters of cotton, tobacco, staves, and petroleum, or importers of Spanish oil, ores, grapes, wines, and if possible backed by well-known American bankers. Special attention should be given to information, not only on the credit of exporters and importers, but also on possibilities of all classes toward development of trade between both countries. Facilities should be granted on consignments or personal security to worthy dealers, and the bank should be prepared in some cases, and according to the position of dealers, to substitute itself for the American vendor in the risk of the ninety days' bills accepted by the Spanish purchaser.

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OTHER WORK FOR AN AMERICAN BANK.

The bank ought also to undertake the examination of new schemes of public works, railways, etc., on account of American firms, without taking a personal risk, but offering, with its character of American bank, such a preliminary guaranty of impartiality as would induce the American firms to move and secure the contract before it is taken by competitors.

The promoters of such a bank should not at the beginning apply to Spanish capitalists for the subscription of shares, but adopt the policy pursued by the active Banco Español de Rio de la Plata, which some years ago established an agency in Madrid, and having obtained a well-deserved credit on the market, has recently been able to place a substantial amount of its shares among the Spanish investors. On the other hand, the American bank should secure a certain degree of local support which would be a guaranty to both shareholders and customers.

To emphasize my opinion, I may say that the evolution of Spanish affairs as shown in my previous contribution to Daily Consular and Trade Reports, is going on in all directions. Our railways show a constant increase of receipts; our budget for 1906 has closed with a surplus of $20,000,000, and that of 1907 is likely to show a similar result. The gold premium oscillates within a narrow limit around 10 per cent, since the conclusion of the political Anglo-Spanish agreement; a greater activity prevails in mining developments; several hydro-electric schemes are in way of realization; a great amount of money is ready for sound investment, due to the consolidation of our public credit at a rate lower than 4 per cent and to a scarcity of debentures paying more than 4 or 4½ per cent.

It is now obvious to everybody, especially to English financiers, that Spain is going ahead and will claim the attention of foreign investors as soon as the circumstances of the money markets will warrant.

The bulk of American imports into Spain amounts to about $17,000,000, and consists of cotton, tobacco, staves, and petroleum, staple goods of absolute necessity. American sales of manufactured articles which could compete are not likely to increase much on the actual terms of cash.

MONETARY AFFAIRS.

GERMANY.

FINANCIAL STRINGENCY IN EMPIRE—CONTINUED INDUSTRIAL ACTIVITY.

Consul Talbot J. Albert, of Brunswick, furnishes the following information concerning the demand for money in Germany in 1907. He says:

The immediate cause of the crisis in Germany has been the intense business enterprise. A disastrous commercial panic has been solely averted by the beneficent operation of the power of expansion and contraction of the circulating medium, and the regulation of the rate of discount exercised by the Imperial Bank. There have been a number of minor failures of less carefully conducted business houses and banks, which would have succumbed, sooner or later,

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without a crisis. As a whole the commercial, financial, and industrial enterprises of the country rest on a firm foundation, which has not been shaken by the monetary stringency.

There has been no overproduction or overspeculation. The demand for goods has not ceased. The traffic returns and profits of the railroads are exceptionally good. The prices for food, coal, and the necessaries of life are extremely high, and show no diminution. There is a demand for higher wages and higher salaries. Except in the building trades, where there have been strikes, there is, comparatively speaking, no labor out of employment. There is no cry of poverty, or evidence of panic. No mills or manufacturing establishments of importance have been closed. There has only been a scarcity of money, and the situation is gradually improving.

BANK-NOTE TAX—DISCOUNT RATES.

The German Government is considering the question of abolishing the limit on the quantity of notes which may be issued by the Reichsbank free of tax or an increase in their amount. It is asserted that the limitation is only a hamper on the bank, and has nothing to do with prudent banking, which depends upon the metal reserve of the bank to the outstanding circulation; that the tax was a compromise between the English system of banking and the unlimited issue of paper money.

The following is a list of the discount rates prevailing in important money centers in November at the height of the crisis, and their subsequent reductions when the stringency began to cease after the 1st of January, 1908: Bank of England: January 2—7 to 6; January 16—6 to 5; Bank of Germany—January 13, 7½ to 6½; Bank of Belgium—January 13, 6 to 5; Bank of Roumania—January 12, 8½ to 7½; Austro-Hungarian Bank—January 10, 6 to 5; Bank of France—January 9, 4 to 3½. It is to be noted that the rate of discount was higher in Germany than in any other country mentioned except Roumania. This is to be attributed to the intense business activity of the country and consequent demand for money.

BRAZIL.

FIRST YEAR'S WORKING OF THE CONVERSION OFFICE.

Mr. Irving B. Dudley, American ambassador to Brazil, transmits an article from the Brazilian Review of December 31, 1907, entitled "The working of the Caixa de Conversão (Conversion Office) during the first year of its existence," from which the following information is extracted:

The Caixa opened its doors for the reception of gold against notes convertible at sight at 15d. per milreis, just one year ago, on December 21, 1906. At the time predictions of failure were freely indulged in, and the possibility of maintaining at par two distinct species of legal tender, one convertible on presentation at a fixed rate, the other inconvertible, merely credit paper, the gold value of which is entirely a function of the balance of foreign payments, was regarded, even in many well-informed quarters, as impracticable.

It is a fact that few of the gold notes are in active circulation. They have been withdrawn by the banks and others to serve as their cash reserves, but in doing so have displaced an equal value of inconvertible notes, which have thus come into active circulation.

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The "fixation" of exchange, as we foresaw, has had another important effect, in so far as thereby banks and merchants have been able to effect a very much larger volume of business with much less money.

The function of the Caixa de Comersão is to prevent exchange going up by issuing notes against gold at 15d. per milreis, and from going down by redeeming these notes at the same rate.

The policy of the Government is to accumulate sufficient gold to guarantee the ultimate conversion of not only the new convertible issue, but of the mass of inconvertible notes, some 640,000,000 milreis.

Since the Caixa de Conversão was opened on December 21, 1906, the maximum ninety-days' rate of exchange on London has been 15 1/32d. and the minimum 15 1/16d., a variation of only 1/32d. During the same period in 1906, 1905, and 1904, the variations were 3 1/4d., 4 1/32d., and 1 1/2d., respectively.

About October, the Bank of Brazil commenced buying bills for future delivery that were liquidated later on in gold, which was imported. From the commencement of November, 1906, to the end of October, 1907, the economic movement has been as follows:

Exports of merchandise	$291,464,295
Imports of merchandise	195,939,821
Excess of exports	95,524,474
Remittances on account of Government, joint stock companies, etc	58,398,000
Difference	37,126,474
Gold imported	28,571,950
Difference—invisible demand for remittances	8,554,524
Amount deposited up to December 21, 1907	33,776,520
Withdrawn	4,100,658
Remaining in deposit	29,675,862

Notes emitted 111,052,900 milreis; converted, 13,493,150 milreis; in circulation, 97,559,750 milreis; fractional coins issued, 8,048 milreis; total in circulation, 97,567,798 milreis, equivalent at 15d. to £6,097,988 ($29,675,862).

CANADA.

LARGE EXPENDITURES FOR THE DEVELOPMENT OF THE COUNTRY.

Consuls John E. Hamilton, of Cornwall, and Almar F. Dickson, of Gaspe, furnish the following report on the revenue and expenditures of the Dominion of Canada:

There has just been issued from Ottawa a statement of the revenue of Canada for the ten months ended January 31, 1908. The aggregate was $81,024,272, against $71,645,730 for the same period of the previous year. The expenditures on current account were $56,332,534, against $45,682,302 for the comparative ten months of the previous year.

The revenue for January, 1908, was $7,268,313, against $6,963,976 in January, 1907, and the expenditures for the same comparative months $10,665,448 and $8,632,194, respectively. The increase of capital expenditures in a greater ratio than the government receipts is due to public works and railways. On the new Transcontinental line so far $17,446,485 has been spent as against $7,308,071 up to January 31, 1908. The net debt of the Dominion stands at $259,504,613, an increase during January, 1908, of $5,761,161.

There are in the Dominion 46 railways operated by electricity, with a mileage of 815. In the year ended June 30, 1907, they carried 273,999,404 passengers and 479,371 tons of freight. The gross earnings were $12,653,905, and the net earnings $4,898,654.

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SPANISH NAVY REORGANIZATION.

NEW REGULATIONS PROVIDE FOR CONTRACTS AND NEW EQUIPMENT.

In transmitting a translation of that part of the new law of January 6, 1908, providing for the reconstruction of the Spanish navy, which mainly concerns foreign manufacturers, Mr. William Miller Collier, American minister at Madrid, under date of January 10, comments:

It will be apparent that the Spanish Government contemplates the purchase of such material abroad. It is generally understood that the specifications on which the contractors are to bid will be published about the end of January, and that two or three months thereafter will be allowed for the formation of the Spanish corporation referred to in this law.

Attention is called to the total appropriations for naval work, which amount in round figures to 200 million pesetas (silver peseta now worth about 17¼ cents). Of this amount, however, only 170 millions, in round figures, are for the construction of new ships. This new construction will comprise 3 battle ships of about 15,000 tons each, 3 destroyers or submarines of about 350 tons each, and 24 torpedo boats of about 180 tons each. The law reads:

The acquisition and repair of equipment for the navy shall be carried out in accordance with the following rules:

1. Manufactured materials and articles to be provided by domestic industry—pursuant to the law of February 14, 1907, and provisions complementary thereto—and those which that industry is able to supply shall be obtained from it, pursuant to the terms of the respective regulations.

Materials and articles not covered by the preceding paragraph shall be obtained from abroad, but earnest efforts shall be made to establish within the Kingdom the manufacture of the articles most useful and important for the navy.

In the shipbuilding and repair yards belonging to the state there shall never be more shipbuilding than enough to meet the ordinary and permanent needs of the navy; their industrial facilities and their work shall be adjusted to those demands, and steps shall be taken to insure the perfect, prompt, and economical performance of that work, as well as the maintenance of the arsenals and dockyards in constant readiness to render such services in the national defense as may respectively be assigned to them.

AWARDING CONTRACT WORK.

2. In the yards of Ferrol and Cartagena work under state control shall as soon as possible be replaced by a system of contract with one or more industrial corporations domiciled in Spain, governed exclusively by Spanish laws, and subject thereto in all respects. In these contracts shall be contained all specifications of the reserves, guaranties, and requirements as to future pledges which the state may deem expedient. Under this system the said yards shall stand on a footing different from that of the military arsenals; to Ferrol preferably shall be assigned the building of large ships, to Cartagena that of similar vessels, and in framing the contracts for their undertakings a distinction shall be made between new naval work, new work for the fitting up and defense of the yards, and repair work of all kinds.

If in order to provide steady employment for the shops and shipbuilding trades, within the limits laid down in the last paragraph of the preceding rule, it should be deemed expedient to carry out in the said yards orders from private parties, such work may be combined with that of the state, due preference being always given to the public service and interest.

The contracts between the state and industrial corporations shall be based on public competition, reserving to domestic products, labor, and capital, the

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largest share possible, using such factors in the way of state employees and equipment as may be available, and taking care to secure the most reputable and approved foreign cooperation as the best guaranty of good work.

Should there be no award, after one or more competitions, the Government shall reestablish work under state control in the yards of Ferrol and Cartagena, providing for industrial and technical cooperation associated with the state, within the limits of the credits allowed by law, until such time as it may be feasible to attempt the carrying out of the contract or of the subsidiary industrial cooperation. Work under state control in the said yards shall be confined to the prosecution of work commenced before the passage of this law, to repairs, and to the building of launches for the fishery patrol.

CUSTOMS EXEMPTIONS—IMPROVING GOVERNMENT YARDS.

The general contracts shall be exempt from the stamp tax (derechos reales) and payments to the state, as well as from the industrial tax.

The custom duties payable on dredges, barges, excavating drills, pumps, cranes, devices for submarine work, and transportation equipment (engines, dumping cars, and portable rails), which the contractors may import from abroad for work on dry docks and docks in our arsenals, shall be refunded when upon completion of such work the said equipment shall be exported from Spain.

Artillery, with such appurtenances as screws, mantelets, mountings, and other accessories which the Government may in its contracts agree to have imported from abroad, shall pay customs duties as a matter of form only.

The supervision and inspection of the work shall be so organized that, while the freedom of management and the manufacturing and economic control shall remain as independent as possible, the efficiency and reliability of the services agreed upon with the state may be amply guaranteed.

3. The yards at Cadiz shall be specialized for carrying out under state control new work, and alterations and repairs of artillery, and docking and repair of ships, as well as such new naval shipbuilding as may be essential for the permanent maintenance and efficiency of their working. In order, nevertheless, to encourage the domestic manufacture of artillery, the Government shall have the option of temporarily ceding to the corporation or corporations in charge of the industrial undertakings at Ferrol and Cartagena, or to some similar concern, the artillery shops at Carraca with the necessary storehouses, on terms similar to those prescribed for the yards of Ferrel and Cartagena.

LIFE INSURANCE IN HONGKONG.

COLONIAL GOVERNMENT'S NEW REGULATIONS PROVIDE SAFEGUARDS.

A colonial ordinance relating to life insurance companies has lately come into force in the colony of Hongkong, its provisions being summarized by Vice-Consul-General Stuart J. Fuller in the following report:

This ordinance relates to all sorts of associations formed to carry on the business of life insurance which desire to do so within the limits of the colony including mutual as well as proprietary companies. Under the terms of this regulation all such companies are required to deposit with the registrar of companies securities to be approved by the governor in council to the value of $50,000 Hongkong currency, equivalent to approximately $25,000 United States gold. Existing companies before continuing business are also required to make a similar deposit.

Companies may deposit approved securities to the value of $200,000 Hongkong currency ($100,000 gold), but, if they do not elect to do so they are required to deposit annually, up to the amount of $200,000, an amount equal to the total amount of premiums received by the company on account of policies issued or entered into in Hongkong less 25 per cent, and less also the net amount of losses or claims ac-

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tually paid on policies entered into or issued in Hongkong. The whole or any part of this latter deposit may be a receipt given by any bank in Hongkong incorporated or regulated by or under any ordinance of the legislature of Hongkong or approved by the governor in council.

Deposits may be withdrawn and others substituted therefor, and the colonial government assumes responsibility for all loss or damage to securities deposited under the provisions of the act in question.

REPORTS AND INSPECTION.

Life insurance companies are required at the expiration of each financial year to submit statements of revenue account and all balance sheets in accordance with the prescribed form. Companies which concurrently with life insurance transact any other kind of insurance or other business are required to make a statement in specified form showing revenue account and balance sheet at the close of each financial year of the company.

Every life insurance company is required at intervals of five years or ten years, according to whether established before or after the commencement of the ordinance, to have an investigation made into its financial condition by an actuary, and to lodge an abstract of the actuary's report in specified form with the registrar of companies.

A further report giving various details in regard to the business is required annually on the prescribed form, and the important points are the average rate of interest at which the life-insurance fund of the company is invested at the close of each year, and also a table of minimum surrender values or a statement of the method pursued in calculating such surrender values, supported by instances of its application to policies of different standing and at different ages. [A copy of the new ordinance may be perused at the Bureau of Manufactures.]

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EXPOSITIONS.

INTERNATIONAL DISPLAYS.

GERMANY.

CLASS OF AUTOMOBILES AND MOTOR BOATS EXHIBITED AT BERLIN.

The following report concerning the Berlin automobile and electric motor-boat exposition is furnished by Consul-General A. M. Thackara, of that city.

The International Automobile Exposition which recently closed was divided into two periods: The first, for pleasure and touring cars, extended from December 5 to December 15, and the second, for industrial automobiles and motor boats, from December 19 to December 22, 1907. The exhibits of automobile parts and accessories, which were located in the galleries of the building, remained the same throughout the exposition.

The exposition was held under the auspices of the Imperial German Automobile Club and the German Association of Automobile Manufacturers, Prince Henry of Prussia, the Emperor's brother, being the patron. The honorary exposition committee was composed of leading members of the automobile world of Germany and of foreign countries, including the president of the American Automobile Club. The working committee included representatives of nearly all of the principal German automobile manufacturing concerns and of the allied industries.

The exposition was inaugurated by Prince Henry, one of the most enthusiastic automobilists in Germany, and a great protector of the German automobile industry. For the second time the exposition was held in the beautiful building erected for exhibition purposes in the grounds of the zoological gardens.

CLASSES OF MACHINES EXHIBITED.

According to the official catalogue of the Motor Car Exposition there were 879 distinct exhibits shown by 317 firms, companies, and individual manufacturers. Of the exhibitors 283 were German, 9 French, 6 Belgian, 5 Italian, 4 Austrian, 3 English, 3 American, 3 Swiss, and 1 Russian.

At the exposition for industrial cars and motor boats there were 674 exhibits shown by 263 different firms, companies, etc., 245 of which were German, 7 French, 3 Swiss, 3 American, 2 English, 1 Austrian, 1 Belgian, and 1 Russian.

While in the expositions there was little that was strikingly novel, except, perhaps, in the low-priced cars, the beautiful work which was displayed indicates most clearly that the manufacturers of touring and business cars are reaching a standard of perfection upon which it will be difficult to improve.

There were to be seen two, three, four, six, and even eight-cylinder motors with vertical water-cooled cylinders with mechanically

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operated inlet and outlet valves, which on practically all of the well-known motor cars were placed on both sides of the cylinders, in a few cases on one side, and exceptionally on top. The double V-shaped and air-cooled cylinders were only to be seen on the smallest and cheapest cars. With the exception of an American machine on which planetary transmission was used, all the larger cars had the sliding gear transmission, which appears to have stood the tests of ordinary practical work, as well as the strain of the great automobile races. It has therefore been adopted as a standard of construction by most of the European manufacturers. Both the bevel gear and chain drives were to be seen, with a marked preference for the former. A number of carburetters for using benzol, alcohol, etc., were exhibited, indicating that great efforts are being made to find a substitute for the more expensive benzine.

NEW ATTACHMENTS AND INVENTIONS.

There were also new types of electric sparking attachments on the principle of a magnetic make and break in the candle. This system dispenses with the pull-bars, cams, etc., and seems to give an equally good spark. The methods of ignition were about equally divided between the make-and-break and the jump spark. Many of the larger cars had the two ignitions, in which cases the high tension magnets with jump spark and the battery ignition, which can be worked independently, were used.

Ball bearings were used throughout on all of the best makes and pressed steel frames were universal.

Honeycomb coolers were mostly to be seen, although the flange-tube radiators were exhibited in the cheaper cars. Positive oil pumps for lubricating purposes have been almost universally adopted in the finer motor cars, but there were still drop-oilers operated by the pressure of the exhaust from the motor, mostly on the lower-priced vehicles. Revolving pumps for water circulation, with which practically every car was equipped, were driven by spur gears instead of chains, belts, or friction wheels.

There were two patented systems exhibited, which are intended to save the automobilist from the annoyance resulting from a punctured tire. The principle in each was to fill the inside of the tire with a gelatinous composition which in its consistency resembles soft rubber. It is forced into the tire under pressure, and it is claimed that owing to its nature, it will neither exude when the tire is punctured nor will the resiliency be affected. The composition is sold under a guaranty that it possesses all the qualities claimed for it and that it is not influenced either by the temperature or by changes in the weather.

LOW-PRICED CARS—AUTOMOBILE BODIES—INDUSTRIAL MACHINES.

The smaller and low-priced cars at the exposition attracted much attention. Many of them were of entirely new types, exhibited for the first time. The prices ranged from 2,500 marks ($595) to 10,000 marks ($2,380), for cars varying from 6 to 3 horse power. A number of firms had one-cylinder motors, but those of two and four cylinders were most appreciated. The exhibition proved that good, light touring cars could be purchased for from 6,000 to 12,000 marks ($1,428 to $2,856), according to horsepower, number of cylinders, number of changes of speed, etc. It was the opinion of most ex-

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perts that the cars offered for these prices were of better value for the money than those which could be bought for from 2,500 to 5,000 marks ($595 to $1,190).

As a rule in Germany, bodies of automobiles are manufactured by carriage builders and sold separately, thus enabling the customer to make his own selection of the style and make of the "carrosserie." The exposition offered a splendid display of luxuriously upholstered and finely finished bodies, principally of the Landaulet and Limousine types. The tonneau, or open body, was seldom seen except on the lowest-priced cars. There were many exhibits of the so-called American summer hood, one of which, made by a firm in Gera, was so arranged as to be easily opened or closed by the chauffeur when the car is going at a high speed.

The great importance which the manufacture of motor vehicles for industrial and business purposes has attained was clearly indicated by the many cars for other than touring purposes which were exhibited during the second period of the exposition. There were to be seen motor-omnibuses, street cars, heavy trucks for carrying coal, iron, beer, etc., three and four wheeled delivery wagons in all sizes, police vans, fire apparatus, vehicles for military use, ambulances, taxameter cabs, etc. Automobile manufacturers have found it to their interests to supply the want which has been created by the rapidly increasing substitution of motor power for the propulsion of vehicles for which animals were formerly used. The demand for motor vehicles for industrial and business purposes will still continue to increase, so that in all probability this branch will prove to be the bone and sinew of the automobile industry.

ELECTRIC CARS AND MOTOR BOATS.

There were also exhibited many electric vehicles of various types, including one of the mixed system; that is, an electrically driven car with a four-cylinder benzine motor to furnish the power to a dynamo for generating the current. The Edison new storage battery was exhibited by a German company.

Cars driven entirely by electricity, owing to their simplicity of construction and absence of noise in running, are making slow but constant progress. In the exposition could be seen electric cars for almost every purpose, from a luxuriously appointed touring car to the lightest delivery wagon. Until a practical accumulator without too much bulk is made commercially possible the use of electric vehicles will necessarily be limited to districts where easy access may be had to power stations for recharging. Cars were exhibited which were guaranteed to run, at a moderate speed, a distance of 100 kilometers (62 miles) with a single charging of the batteries.

The motor-boat display, while not as extensive as at the Kiel Exposition last summer, was much larger and more complete than during the Berlin Exposition of 1906. It indicated most clearly the development which has taken place in the German motor-boat industry during the past few years. There were exhibited magnificent pleasure boats with inclosed apartments finished in mahogany, some of sufficient size and power to cruise at sea; boats for harbor traffic and for police purposes, motor yachts, smaller cabin and saloon boats for use on inland rivers and lakes, etc.

There was only one boat of American manufacture exhibited, a pressed-steel launch 23 feet long, with a 3-cylinder ferro motor of 16

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to 20 horsepower, guaranteed to run 16¾ miles an hour in smooth water. The absence of American motor boats is greatly to be regretted, for, as stated before in reports from this consulate-general, in this section of the country there is every reason to believe that there would be a good opening for the sale of the excellent, well-built, handy, and reasonable-priced touring craft which have attained such great success in the United States.

SALES OF EXHIBITED VEHICLES—NEXT EXPOSITION.

On the whole, the Berlin Exposition of 1907 may be considered to have been a great success. The attendance during the first period broke all the records of former expositions, but it fell off during the second period—that devoted to the display of industrial cars and motor boats. From a business point of view the largest sales were made of the medium-priced vehicles. On one of the exhibits the placards indicated that 178 sales of duplicates had been made. It was a four-cylinder 12 to 16 horsepower, well-constructed touring car, tonneau body, with horn and petroleum lamps, ball bearings throughout; price, 8,500 marks ($2,023).

At a meeting of the Association of German Automobile Manufacturers, held during the exposition, a resolution was passed, with but 3 dissenting votes, not to hold an exposition under the auspices of the association until September, 1909, and to fine any member 10,000 marks ($2,380) who would take part in any other exposition before the date mentioned.

EXHIBITS OF AUTOMOBILE PARTS AND MACHINE TOOLS.

The classification by nationalities did not indicate accurately the countries of origin of the various exhibits, as machinery, automobile parts, and accessories of foreign manufacture were displayed by German firms and companies which are the agents for the sale of such products in Germany. For instance, while there were only three distinct American exhibitors, one Berlin firm, which carries an extensive line of American machine tools, exhibited a fine collection of American lathes, turret machines, drill presses, milling machines, etc., for making the various parts of motor cars. There were several other firms also which exhibited tools of American manufacture. As the machines were shown in operation, they made an attractive display.

It would be well for our American machine-tool manufacturers to realize the great progress which has been made by the Germans during the past five years. While it is true there are machines made in this country which follow closely American lines, there are others which show great originality of design and which for their efficiency, careful construction, and comparatively low prices may become formidable competitors of American tools.

At the exposition there were shown electric and steam driven tools of German manufacture for boring, shaping, grinding, and polishing; machines for sharpening saws and milling tools; drilling machines of various sizes; automatic turret lathes for heavy and light work, for making nuts, screws, and bolts, etc.; special machines for turning and grinding crank arms for motors, for boring cylinders, for planing and milling gears.

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AUTOMOBILE INDUSTRY AIDED BY THE GOVERNMENT.

The interest which is shown by the Government in the various industries of the German Empire is evidenced in its endeavors to ascertain the present condition of the automobile trade and the most efficacious measures to adopt through which governmental aid may be rendered to increase the outlets for the sale of motor cars and accessories of German manufacture.

A meeting was recently held at the Imperial Ministry of the Interior, at which were present representatives of the Government, of the Imperial Automobile Club, and of the Middle German Automobile Manufacturers' Association and the principal officers of the leading German motor-car manufacturing companies. A series of questions were drawn up which are to be sent for replies not only to the automobile manufacturers of Germany, but to the producers in the allied industries, rubber, carriage works, benzine, etc., and to furnishers of raw materials. The nature of the inquiries has not been made public, but the information asked for is embodied in three groups of questions covering the years 1901, 1903, and 1906, in order that the development of the motor-car industry up to and including the latter period may be definitely ascertained, as it is assumed that the changes made in 1907 are not important.

HOTEL KEEPERS' EXHIBITION AT NUREMBERG.

EXPOSITION OF FOOD SUPPLIES, CULINARY APPLIANCES, ETC.

Announcement has already been made in Consular and Trade Reports of a forthcoming German exposition under the management of a hotel keepers' association, concerning which Consul H. W. Harris, of Nuremberg, sends the following additional details:

From September 19 to 30 an exposition will be held at Nuremberg in the interest of culinary art, general food products, army sustenance and of meat shop, confectionery, bakery, hotel, and innkeepers' appliances, etc. The exposition is to commemorate the twenty-fifth anniversary of the Innkeepers' Association of Nuremberg and is under the protectorate of Prince Alfonso of Bavaria. It will be housed chiefly in a large permanent exposition building in the city having, it is stated, more than 10,000 square yards of floor space.

Sixteen separate groups of exhibits are announced. Groups 1 and 2 include food products of all kinds, such as dried and preserved fruits, meat and dairy products, edible oils, sauces, spices, alcoholic and nonalcoholic beverages, etc. Groups 3 and 4 embrace appliances, implements, and machinery for hotels, restaurants, kitchens, bakeries, meat shops, dairies, confectioneries, etc. Other groups will include tableware of all kinds, billiards and other games, automatic musical instruments, sanitary appliances, table and bed linen, furniture, wooden ware, kitchen and hotel elevators, scientific literature pertinent to the general subject-matter of the exposition, advertising specialties, table decorations, menus, etc.

RATES FOR SPACE—OPPORTUNITY FOR AMERICAN ARTICLES.

The management announces the charge for floor space for 1 square meter (1⅛ square yards as 25 marks ($5.95), on up to 90 marks

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($21.42) for 4 square meters, each additional square meter to cost 15 marks ($3.57). Exhibitors taking 20 square meters or more are to pay at the rate of 15 marks ($3.57) per square meter. Applications for space are to be made not later than August 1 on blanks furnished by the management.

Nuremberg and the adjoining city of Fürth have a population of nearly 400,000 people and form the chief manufacturing and exporting center of Bavaria. Experience has shown that expositions in Germany have a large attendance and are regarded as valuable advertising agencies. This consulate is of the opinion that the Nuremberg exposition offers an excellent opportunity for well-selected exhibits of certain food products of the United States now sold abroad and for novelties and other articles falling under some of the groups. The services of intelligent American students coming abroad could doubtless be secured to look after such exhibits. A study of the exposition itself should be of considerable educational value.

Correspondence should be addressed to Bureau Kochkunst Ausstellung, Nuremberg, Germany. This consulate will gladly render American exhibitors such services as it can without neglect of its other duties.

ITALY.

WORLD EXPOSITION WILL BE HELD JOINTLY AT ROME AND TURIN.

Baron Edmondo Mayor des Planches, Italian ambassador at Washington, furnishes, through the Department of State, the following note in relation to an international exposition to be held at Rome and Turin three years hence in commemoration of the fiftieth anniversary of the proclamation of the Kingdom of Italy:

Rome and Turin, with the cooperation of all the Italian provinces, are making preparations for a solemn celebration of the fiftieth anniversary of the proclamation of the Kingdom of Italy.

As a part thereof, the two cities have announced an international exposition which will be held in 1911 under the auspices of His Majesty the King, at Rome in its artistic and historico-archæological part, and at Turin in the part which includes the products of industry and labor in their various manifestations.

The Government of Italy invites the participation of the United States in the International Competition of Industry and Labor at Turin and of Art and History at Rome.

His excellency the minister of foreign affairs lastly suggests that it would undoubtedly be expedient, in order to facilitate the participation, if it be decided to take part, that steps be taken here to appoint a commissioner-general who might, at the proper time, communicate directly with the exposition's committees on organization.

FIREPROOF EXPOSITION MATERIALS.

CONTEST TO BE HELD AT TURIN FOR NONINFLAMMABLE BUILDINGS.

Consul Albert H. Michelson, of Turin, reports that, in view of the damages caused by fire to previous international expositions, the Italian executive committee of the International Exposition to be held in Turin in 1911 has instituted an international competition to

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test the relative merits of various materials and processes, whereby the timber and textile tissues to be used in the construction of the buildings of the said exposition may be rendered noninflammable. The consul describes the plans:

The fireproofing materials in question will be divided into those for the protection of timber and those for the protection of tissues. For timber a speedy and cheap method of superficial coating will be preferred, although other processes will be given every consideration. The timber treated must not be rendered unfit for polychromic decoration of any sort. Tissues must be treated in such a way as to impair least their strength, elasticity, and coloring.

Materials, whether destined for the protection of timber or tissues, must be furnished, free of all charges, to the "Direzione del Laboratorio di Chimica Docimastica del Regio Politecnico di Torino," before September of this year, and must be supplied in sufficient quantities to protect at least 50 square meters (538 square feet) of timber or tissue, as the case may be.

REQUIREMENTS OF THE COMPETITION.

The executive committee states that it reserves the right to purchase such fireproofing materials as shall have been judged worthy of an award, in quantities sufficient for the protection of all exposition buildings. Competitors are therefore required to forward with their samples a statement setting forth the amount of material they will engage themselves to supply, and the price thereof, c. i. f. Turin. They should also furnish, for purposes of identification, an exact description of their material, together with detailed directions regarding the manner and method in which the material is to be tested. The consulate suggests that although such directions should be in English for reasons of complete accuracy it might be well to furnish translations thereto either in French or Italian.

The jury appointed by the executive committee will judge promptly, in a technical, practical, and economic light, the samples submitted to it, and will make such tests as it may deem proper. Competitors are at liberty to attend these tests, either personally or by proxy, but can not appeal from any decision that the jury reaches.

The awards which the jury itself has at its disposal consist of two gold and two silver medals (the first and second prizes for each of the two classes of materials mentioned), and $800 in cash, to be distributed among such competitors as the jury may deem especially worthy of reward on account of research work performed by them, or on account of noteworthy results produced.

RUSSIA.

INTERNATIONAL BUILDING ARTISTICAL EXHIBITION AT ST. PETERSBURG.

Vice Consul-General John Mueller calls attention to an international exposition for building materials and industry relating to the building line which will be held in St. Petersburg under the auspices of the Society of Civil Engineers, opening May 28 and closing October 28, 1908. Mr. Mueller adds the following particulars:

This exposition is indorsed by the Russian ministry of commerce and trade, the ministry of the imperial court, and the department for

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the institutions of the Empress Marie, and from information received it promises to be of great commercial and industrial importance to all countries participating. The territory assigned to the exposition is located on the banks of the river Neva in a very picturesque part of one of the islands belonging to the suburbs of St. Petersburg, where one large permanent stone building is already erected. The attention of American firms engaged in the building line is invited to this opportunity to display their materials and articles, as in this special line the United States is in advance of other countries, while Russia offers an immense field for improvements and the most extensive market for American goods in this industry. The usual arrangements for free entry for exposition goods have been made with the imperial custom-house and a St. Petersburg firm has been appointed as commissioners for the American department, to whom applications for space can be addressed. Copies of the rules, form of application in the English language, and a map showing the exposition grounds are forwarded herewith. [These and the address of the commissioners for the American department may be obtained for examination by American firms from the Bureau of Manufactures.]

NORWAY.

IMPORTANCE OF AMERICAN REPRESENTATION AT MOTOR EXPOSITION.

Consul Felix S. S. Johnson, of Bergen, calls the attention of American manufacturers of motor boats and engines to the Norwegian exhibition of such mechanisms to be held this coming summer at Trondhjem, concerning which he writes:

Applications for space should now be filed. It is of the greatest importance that the United States should take part in this exposition, as it will be the means of opening up a new market for American goods in Norway. The fishing fleet on the western coast of Norway, consisting of many hundred boats, is gradually being fitted up with motor engines. It is only at these expositions that fishermen and others can see the working of the motor boats and the advantage of the one boat over the other.

At the exhibition held in this city last year, only two American firms were represented, whereas other foreign nations had a full exhibit. In view of the great advantage to be derived by exhibiting, I strongly urge all motor manufacturers to take part at this exhibition; the expense may be large, but the results will more than repay this outlay.

FRANCE.

AGRICULTURAL MOTOR EXHIBITION TO BE HELD AT BOURGES IN JUNE.

France is largely an agricultural country, and the question of the moment among agricultural societies is the adaptation of the motor to agricultural purposes. With this object in view, an "Exposition Internationale de l'Automobile Agricole" will, for the first time, take place in June at Bourges (central France). The programme of the exposition is a comprehensive one and worth the attention of all interested in the supply of every kind of agricultural machinery and farming implements. The address of the secretary of the exposition is 24 rue Notre Dame, Bourges.

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PARAGUAY.

PROMOTION OF MARKET GARDENING—EXCELLENT SALES OPPORTUNITIES.

Consul Edward J. Norton sends the information that an agricultural exposition will be held in Asuncion on May 14, 15, and 16 under the direction of the National Agricultural Society of Paraguay, the plans being as follows:

The sole object of this exposition is to show the opportunities awaiting the cultivation of early fruits and vegetables for export. As regards season, soil, and climate, Paraguay bears practically the same relation to Montevideo and Buenos Aires as does Florida to the great city markets of the Northern States.

Based upon these natural advantages, the Agricultural Society has made a careful study of the markets of Rio de la Plata and has arrived at the conclusion that if the Paraguayan people can be aroused to an appreciation of the opportunities awaiting them, a new and important industry may be created.

Paraguay now ships tomatoes, oranges, pineapples, and bananas to the markets of the Rio de la Plata but these products are not selected, packed, and handled en route with sufficient care, wherefore the profits have been small, and little interest has been manifested in the extension of the industry.

PLANS FOR EXTENDING MARKETS—AMERICAN CATALOGUES INVITED.

Growers will be encouraged and assisted in improving the quality of their garden products and instructed in the selection of produce for export and the proper methods of packing, as well as impressed with the necessity of cultivating a wider range of vegetables and fruits, particularly potatoes, squash, asparagus, radishes, beets, onions, grapes, watermelons, cantaloupes, strawberries, and figs, all of which it is reported, will find ready sale in the Southern markets.

Fast steamers on the down trip now make the journey to Buenos Aires in three days, and to Montevideo in four days. While the question of transportation is simple, the problem of marketing products requires careful and thorough study, but the society hopes to overcome difficulties through the cooperation of the Government with the growers.

It is suggested that seedsmen and nurserymen of the United States forward catalogues (several sets) and pamphlets, in Spanish, for distribution during the exposition. If these are forwarded to this consulate, care will be taken to see that the printed matter is properly handled. Posters to brighten the exposition building will be welcomed. Displays of seeds, even on a small scale, or the sending of a few attractive specimens of prize vegetables, such as one notes at state fairs in the United States, would certainly be a profitable advertisement for the exhibitor.

Catalogues from manufacturers of mill machinery for the making of baskets, crates and orange boxes are also requested.

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BRIQUETTES.

MODERN FUEL PRODUCTS.

FRANCE.

THEIR USE AS LOCOMOTIVE FUEL ON RAILWAYS OF THE REPUBLIC.

Consul-General Frank H. Mason, of Paris, furnishes the following report on the fuel consumption of four of the great railway systems of France, namely, the Northern, the Eastern, the Paris-Orleans, and the state railways, with special reference to the use of briquettes:

The Northern Railway of France operates a network of lines 2,354 miles in length and traversing the territory from Paris northward to the English Channel and the frontier of Belgium, including the coal fields of the Pas-de-Calais and the Nord. According to the statement of the chief engineer briquettes constitute from 12 to 15 per cent of the entire locomotive fuel supply used by the company. They are cubical in form, weigh about 10 kilos (22.046 pounds) each, and contain from 18 to 22 per cent of volatile matter. They are used for kindling the fire and getting up steam before the engine goes upon duty, and during the run when, by reason of a heavy train, a strong ascending grade, or the necessity of high speed, it is required that the locomotive shall put forth its maximum effort. The other fuel used is coal or slack of ordinary quality.

COST AND TESTING OF FUEL.

The cost of briquettes on the Northern Railway varies slightly with the market price of coal, but has ranged during the past three years from 15.75 to 22 francs ($3.03 to $4.25) per metric ton of 2204.6 pounds. The conditions imposed upon the manufacturers who supply briquettes to the company are as follows:

First, that the proportion of ash shall not exceed 8 per cent, or if it does a deduction of 10 cents per ton is made for every 1 per cent excess of ash above the standard, 8 per cent.

Second, that the coal employed shall be of a coking quality; that is, there shall be such a combination—either natural or artificial—of fat and lean elements as to produce a coal susceptible of being coked.

Third, the standard maximum of humidity is 5 per cent at a temperature of 100°.

Fourth, cohesion must not be less than 50 per cent. This is measured by the apparatus employed by the French navy, which consists of a rotary sheet-iron cylinder, 39 inches long and 32 inches in diameter, hung on an axle, and having three interior flanges about 10 inches high. For the test, 50 kilos of briquettes are broken into pieces, weighing about 1 pound each. These are put inside the cylinder, which is then revolved at a rate of 25 turns per minute. After having made 50 revolutions the cylinder is opened and the contents poured upon a horizontal grate with square holes, 3 centimeters (1⅛ inch) long and broad. The pieces which do not fall through the grate are then weighed, and they should constitute not less than 50 per cent of the whole amount submitted to the test. If the débris that falls through the grate exceeds one half the original material the cohesiveness of the briquettes is proved to be below the prescribed standard.

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THE EASTERN RAILWAY.

This company owns and operates a network of lines 3,068 miles in length, and extending from Paris and eastward to the frontier of Belgium, Germany, and Switzerland.

Fifteen per cent of all locomotive fuel used by the Eastern Railway Company consists of briquettes made of pulverized coal held together by a matrix of 8 per cent of "brai" or coal tar derived from gas manufacture or coke production with recovery of by-products. The fine coal used is carefully composed of such proportions of fat and lean varieties as to give from 17 to 19 per cent of volatile matter and the requisite degree of firmness, cohesion, and percentage of ash. Anthracite dust is used to some extent in combination with fat bituminous varieties, so proportioned that the ash residue shall not exceed 8 or 9 per cent. Care is also taken to secure cinders which are but slightly fusible and do not form the refractory "clinkers" which are so difficult to manage in a locomotive fire box.

The briquettes used by the Eastern Railway Company are made in presses of two types, viz, the Bietrix, in which the mold is closed, and the Bourriez press, in which the mold opens with each revolution. The first apparatus turns out briquettes flat in form, with rounded edges and weighing 5 kilos, or about 10 pounds each, though for certain purposes they are made in smaller sizes, from 3 kilos upward.

The price varies with the current market value of coal and is reckoned at 5 to 6 francs ($0.96 to $1.15) per ton above the cost of coal. The conditions stipulated in the purchase of briquettes for the use of the company are that the coal before admixture of the matrix shall be susceptible of coking; that the briquettes shall be firm, well made, burn freely without clogging the tubes of the boiler, and shall contain not to exceed 5 per cent of moisture or 8 to 9 per cent of ash. Excess of humidity or ash residue above these limits is charged for in a proportionate reduction in the price paid for the briquettes showing such defects.

Briquettes are used on all the locomotives of the Eastern Railway Company for kindling the fire, getting up steam after the engine has been off duty, and in all cases where, by reason of a heavy grade, load, or speed, the maximum effort of traction is required. The relative proportions of briquettes and coal used vary with the season, weather, and nature of service required, the harder the service the greater the percentage of briquettes used, and this proportion varies from 12 to 30 per cent, with a mean average of 15 per cent throughout the year.

THE PARIS-ORLEANS SYSTEM.

The Paris-Orleans Railway Company owns and operates 4,467 miles of lines, extending from Paris southwesterly to Toulouse and Bordeaux, and one line westward, via Tours and Nantes, to Brest, on the extreme western coast of France. Little or no coal is mined on the territory traversed by the lines of this company. It uses annually 285,000 tons of briquettes, which form 28 per cent of its entire locomotive fuel supply.

The briquettes used by the Orleans company are of the ordinary cubical shape, but are made in several sizes, from 5 to 10 kilos in

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weight, and cost, according to the varying price of coal, 20 to 28 francs ($3.86 to $5.40) per metric ton.

The conditions imposed by the company upon contractors who supply briquettes for locomotive fuel are quite elaborately given in the "Cahier" which is furnished as an exhibit with this report [filed for public reference at the Bureau of Manufactures]. They include, among others, the following stipulations: That an agent of the company may at any time inspect and observe the manufacture of briquettes intended for its use; that tests shall be made upon demand to demonstrate the quality of the briquettes; that the company may specify the coal mines from which the material for its briquettes shall be derived; that the coal shall be of recent extraction, as free as possible from sulphur; that it shall not produce "clinkers" to the injury of grates or prevention of steaming; that they shall burn with a live, clear flame and produce only a light-gray smoke; shall have a density of from 1.13 to 1.21 and a cohesion of not less than 50, or if below that standard, to be subject to a proportionate discount in price.

THE STATE RAILWAY.

The State Railway system includes a main line from Paris to Bordeaux, with a network of branches extending to Angers, Nantes, Poitiers, La Rochelle, Angoulème, and other points, a total length of 2,916 kilometers, or 1,811 miles. The total train mileage of the system in 1906 was 10,854,007 miles, of which freight trains are credited with 3,301,278, and passenger and mixed trains with 7,552,729 miles of service. The authorities of this railway own no coal mines and therefore buy all their fuel, which includes 120,000 tons of briquettes, or 40 per cent of its entire fuel supply for use in locomotives. The supply of briquettes has been hitherto received under a three-year contract made in October, 1904, which provided for the delivery free of briquettes, in cars furnished by the railway, at any of its stations, for a price between 18.75 and 19.70 francs ($3.65 and $3.80) per metric ton.

The "Cahier des Charges," which is sent as an exhibit with this report [filed at Bureau of Manufactures], shows in elaborate detail the conditions which are imposed upon contractors who supply briquettes for the State Railways. They are similar to those prescribed by the other companies already described, and require that the briquettes shall be composed of coal of a quality that can be coked, free from sulphur, schists, pyrites, or other impurities; that they shall be hard and sonorous with a cohesion of fifty-five one-hundredths; with not more than 10 per cent of ash residue; volatile matter not less than 16 nor more than 22 per cent, and as far as possible free from humidity.

INSPECTION OF FUEL—RÉSUMÉ OF CONDITIONS.

Provision is made that the briquettes may be inspected during or after manufacture by an agent of the railroad, and that before delivery each shipment of 400 tons shall be minutely inspected and analyzed. The tests for cohesion are made by the marine apparatus already described in this report. The "Cahier" shows the discounts from the net contract price which shall be made for all delinquencies

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or defects in cohesion, purity, ash residue, or other essential quality below the prescribed standard.

From the foregoing synopsis of the regulations prevailing on four of the railway systems of France it will be seen that briquettes, made of pulverized coal and mineral pitch, form the choicest and most expensive fuel used for firing locomotives. The extent of their use is governed by the service demanded of the engine under varying conditions of season, weather, speed of trains, and grade of track to be overcome—the more severe the service the larger the proportion of briquettes used for firing the locomotive. The average percentage employed varies from 12 per cent of the entire fuel supply on the Northern Railway to 40 per cent on the lines owned and operated by the State.

GERMANY.

DESCRIPTION OF METHODS FOR CONVERTING PEAT INTO FUEL.

Consul Southard P. Warner, of Leipzig, reports that a German engineer, writing upon the subject of making use of peat as fuel, says:

Many attempts, unfortunately accompanied with negative results, have hitherto been made to utilize peat beds by converting peat into coal. The cost of producing peat briquettes and peat coal were out of all proportion to the price of common fuel. The structure also of the peat coal derived in this manner resembled more that of easily crumbling coke than of hard coal. The chief reason for all previous failures may be attributed to the fact that the ordinary drying processes have not removed a sufficient portion of the water. The vegetable cells holding the water yield up their contents only if they are burst. Various methods have been employed for bursting the cell tissue, as for instance, by grinding the peat in specially constructed mills, by the application of steam, and also electrolytically. These processes have proved to be too expensive.

A recent manner of production has the merit of less expense. It consists essentially in bursting the vegetable cells by an appropriate treatment of the peat in a vacuum. A vacuum adapted to practical purposes may be attained by the employment of two kettles connected by a pipe. Kettle 1 is heated to 28° C. The vegetable cells of peat burst at this vacuum temperature. On opening the cock of the pipe to kettle 2 half of the vacuum—supposing the contents of both to be the same—passes from kettle 1 into kettle 2, and half of the air in kettle 2 pours into kettle 1. The peat contained in kettle 2 is now treated in the same manner, so that half of the vacuum may constantly be turned to practical account. In the meantime, the peat in kettle 1 can be removed and transported to a press, where most of the moisture is eliminated. Finally, it can be desiccated in storehouses, and in a short time the water contents have been reduced to 10 per cent.

BY-PRODUCTS—COST OF PRODUCTION.

To produce the necessary motive power for the plant the peat is gasified in retorts by a patented process. An unusual quantity of gas, ammonia, tar, peat oil, etc., is thus extracted. The gas so derived may best be applied for heating the retorts. Nevertheless, there re-

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mains about 60 or 70 per cent of gas that can be utilized for the necessary gas engines or for producing peat coal in the retorts. The latter process consists of heating peat to about 300° C. in retorts entirely inclosed in material easily penetrated by heat. As soon as the proper temperature has been obtained the oven is closed air-tight and the heat shut off. The mass remains in this state some hours. A large quantity of gas has developed in the retorts, and not being able to escape, it exercises a great pressure, so that a portion is reduced to paraffine, which is pressed back into the mass. The peat is exposed to such a high pressure that it forms a compact body resembling coal, as opposed to the hitherto soft products.

The peat now can be broken up or ground and then formed into briquettes in retorts by a cold process. This method yields a coal possessing 6,500 to 7,200 calories of heating power, which burns without the development of smoke or bad odors and leaves almost no ashes. The cost of installing a complete plant producing 30 to 50 tons of coal and coke per day is about $14,600, with an additional $9,730 essential for dredges, buildings, and gas reservoirs. One ton of desiccated peat will produce with the vacuum process about 7 hundredweight of coke, about 55 pounds of ammonia salt, about 132 pounds of tar and peat oil, varying with the treatment of the peat, and about 654 cubic yards of gas. If the gas be mixed with the gas first obtained in the retort process it furnishes a very good heating and motive power; 6.5 or 7.8 cubic yards of wet peat are necessary for yielding a ton of peat capable of treatment. One may calculate the price of dry peat at about 73 cents per cubic meter (1.3 cubic yards). One ton of peat produces about 13 hundredweight of coal, besides some peat oil and gas. A plant of this nature would require about 12 to 15 men for day and night shifts.

PROFITS AND FIELD OF USEFULNESS.

By combining the three processes described, very cheap manufacture is possible, allowing of a very high profit. The power consumption of the machinery is normal. The peat beds also contain other economic treasures. It is well known that Germany, and, in fact, all European states, expend large sums annually for fertilizers. Frequently the cost of transportation exceeds the purchase price proper. Peat is to be found in almost all districts, and sufficient ammonia for supplying the requirements of the respective districts can be obtained from this material. It is very probable also that this fertilizer has better qualities than, for instance, potash. In addition, a coal can be produced that is particularly advantageous for nautical purposes, the more so as smokeless fuel is of inestimable value to the navy. Its employment on commercial steamers would free passengers from the smoke nuisance.

Still higher results could be attained by using peat gas for producing electricity, which could then be conducted to the point of application by means of wires. The owners of territory in East Germany could cultivate their fields with electrically-driven implements; the employment of electricity for propelling railways would also be facilitated. Electric heating and lighting would rapidly gain ground. In fact, this new material could give rise to immeasurable progress in trade and industry. [The addresses of German firms engaged in the manufacture of machines for making peat briquettes may be obtained from the Bureau of Manufactures.]

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BELGIUM.

FORM PORTION OF FUEL OF GOVERNMENT RAILWAYS.

Consul-General Ethelbert Watts, of Brussels, makes the following report on manufacture and use of briquettes in Belgium:

According to the latest official statistics concerning briquetted fuel in Belgium for the year 1906 there were 48 plants engaged in the manufacture of various kinds of briquettes. Thirty-four of these plants were in the province of Hainaut, with a total of 74 presses, employing 1,265 workmen; 1,324,390 tons of coal were consumed to produce 1,456,840 tons of briquettes, valued at $5,376,530, price per ton being $3.69. In the province of Liege there were 9 plants with 17 presses, employing 160 workmen; 256,980 tons of coal were consumed to produce 279,210 tons of briquettes, valued at $980,025, price per ton being $3.51. There were 5 plants in the province of Namur, with 16 presses, employing 113 workmen, and 125,340 tons of coal were consumed to produce 151,040 tons of briquettes, valued at $516,195; the price per ton was $3.43. The foregoing are average prices given for briquettes f. o. b. at works.

The heating value of briquettes depends entirely upon their component parts and the density of the bricks. Briquettes of 90 per cent coal mixed with tar or pitch have a heating power about 10 per cent greater than the coal from which they are made. The caloric value per briquette is estimated at 7,500 calories, or in English thermal units 30,000.

The following statement is given by the Belgian state railroad department, which operates 90 per cent of the railways in the kingdom: The consumption of briquettes and coal is about 1,160 tons of briquettes and 4,400 tons of coal per day on the Belgian Government railroads. Of briquettes known as Type I, 350 tons are used, and of briquettes known as Type II, 810 tons. In addition to this 90 tons English nut coal, replacing briquettes, are used for locomotives.

MAKE-UP AND PRICES.

The briquettes are of a rectangular shape, the weight varying according to the contractor from 3 to 7 kilos (6.6 to 15.4 pounds).

The following prices per ton of 1,000 kilos (2,204 pounds) were paid by the railroad department in September, 1907: Briquettes, Type I, 21 francs ($4.05); Type II, 23 francs ($4.44); English nut coal, 19.75 francs ($3.81).

Common requirements for the composition of the two types of briquettes used for locomotives are as follows: The mineral pitch or coal tar must be dry or semibituminous. The briquettes must not contain more than 1 per cent of water, 1 per cent of cinders, and have a maximum of 10 per cent of coal tar. They must be hard and should maintain their hardness at a temperature of 50° centigrade.

The coal used for the manufacture of briquettes, Type I, must be semibituminous, or at least one-fourth bituminous, with 12 per cent volatile matter, and recently mined. There must not be more than 4 per cent of water, nor more than 8 per cent of cinders.

For Type II the coal must be semibituminous, the amount of water not more than 4 per cent, the maximum of cinders 8 per cent,

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and the volatile matter not less than 15½ per cent nor above 18 per cent.

The railroads purchase their fuel and all other materials by contract from the lowest bidders. Forwarded herewith are copies of specifications for the purchase of fuel supplied by the Government state railroads.

SWITZERLAND.

IMPORTATION AND USE ON SWISS RAILWAYS.

Vice-Consul Leo J. Frankenthal, of Berne, states that as Switzerland posseses no coal mines all the coal used in the country must be imported. He gives the importation of coal and briquettes in 1906 as follows:

From—	Coal.	Briquettes.	From—	Coal.	Briquettes.
	Metric tons.[a]	*Metric tons.*[a]		*Metric tons.*[a]	*Metric tons.*[a]
Germany	1,465,510	394,750	Austria	12,690	1,290
France	236,460	31,160	Netherlands	1,490	230
Belgium	93,950	18,250			
England	23,620	45	Total	1,833,720	445,725

[a] 1 metric ton=1,000 kilos=2,204.6 pounds.

These figures include the quantities used on the railways. In 1907 the Swiss Federal Railways used 340,000 metric tons of briquettes and 180,000 metric tons of coal, the briquettes being mainly from the Ruhr and the coal mostly from the Saar districts, in Germany. The regulation briquette for use on locomotives weighs 10 kilos, but some of lighter weight, 3 and 6 kilos, are used. They have the form of a rough, oblong block, and no particular dimensions are prescribed. Specifications governing the purchase of briquettes for the Federal Railways can not be obtained for the reason that private contracts are made with the coal syndicate (Kohlenverband) at Mühlheim and with the Royal Direction of Mines (Königl. Bergwerksdirektion) at Saarbrücken, Germany. The prices do not appear in the railroad reports. Public bids are not asked. The present wholesale market price of Saar coal is $5.56 to $5.75, and of Ruhr briquettes, $6.85 per metric ton, delivered at the Swiss-German boundary.

The briquettes, although more expensive than coal, require less storage space, retain their original good condition for a longer period, besides furnishing power in a concentrated form. They are used mainly for fast trains, while the coal is burned on freight locomotives. Well-made briquettes should break into several large pieces from the blow of a hammer, but should not crumble.

MEXICO.

EXTENSIVE PEAT DEPOSITS AND POSSIBLE UTILIZATION.

Consul-General A. L. M. Gottschalk reports that for some years past the presence of peat bogs at certain places near Mexico City, notably near Xochimilco, was a well-known fact, but a few abortive

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attempts at forming companies for their development gave no results. The consul-general writes as follows of present development plans:

The problem was an interesting one, as the capital city, like many municipalities in Mexico, has for many years past been depending for its fuel supply upon the neighboring woods, with the result that there has been at the hands of woodcutters and charcoal burners a very unnecessary deforestation of woodland, which Baron Humboldt (in 1828) described as very luxuriant and which to-day is covered with a very inferior "second growth" of trees.

It is now announced that a company [address on record at Bureau of Manufactures] formed in New York in 1907 and exploiting a patent for briquetting peat, the discovery of a United States consul, is about to establish in Mexico a 2,500-ton plant.

It is expected that the peculiar qualities of peat as a fuel, its smokelessness, its producing no clinker, its freedom from any of the sulphur products of combustion, joined to the fact that its ash has fertilizing qualities, will all tend to assure a great sale for the product here and perhaps abroad.

The company proposes also, in addition to selling fuel, to furnish power. It is said that the surveys of the peat bogs made by the company, not far from the lake of Tezcoco, have shown them that they had available some 8,000,000 tons of what is known as "moss" peat. They have acquired the right to these deposits and propose to invest some $2,000,000 United States currency in the plant for its exploitation, which will be located at some point in the Valley of Mexico, not far from the city.

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TARIFFS.

CHANGES AND REGULATIONS.

AUSTRALIA.

MODIFICATIONS IN THE NEW CUSTOMS TARIFF BY PARLIAMENT.

The following summary of the changes made in the tariff bill by the Australian Parliament, is reproduced from the London Commercial Intelligence:

Introduced into the Commonwealth House of Representatives on August 8 last, the new Australian customs tariff has passed that House.

Further alterations at the hands of the Senate are not likely to be extensive. A very large number of modifications, however, have been made by the representatives.

In many instances the preference [British] has been increased, but the chief feature of the revision has been the reduction of the heavier duties. The result is that the tariff is much milder than might have been expected from the draft proposals. The new excise duties to be imposed on Australian manufacturers who do not observe "fair" labor conditions have also to be taken into account in estimating the protective effect of the new tariff.

In the textiles group the principal items have come through unchanged, with the important exception of whole or partly made up apparel of wool and silk, or containing wool and silk. From 45 per cent (general) and 40 per cent (British) the duty on these goods has been reduced to 40 per cent (general) and 35 per cent (British).

The duties on small arms have been materially altered. On double-barreled guns the proposed duties were 11s. each (general) and 10s. (British), on single-barreled 5s. 6d. (general) and 5s. (British), the duties on barrels for same or actions to be half these amounts. All are now to pay 15 per cent (general) and 10 per cent (British). On revolvers, pistols, and air guns the duties are to be 2s. 9d. each, or 20 per cent ad valorem (general) and 2s. 3d. (3d. less) or 15 per cent ad valorem (British).

METALS, HARDWARE, AND MACHINERY.

In this group most of the duties have been recast and lowered. Corrugated galvanized-iron plate and sheet is to pay 30s. per ton (general) and 20s. per ton (British), instead of 25 per cent and 20 per cent ad valorem. Galvanized iron not corrugated, and corrugated not galvanized are to pay 20s. (general) and 10s. (British). Five per cent has been taken off the duties on bolts, nuts, and rivets, and now pay 25 per cent (general) and 20 per cent (British). The duties on lamp, gas, and electrical stoves have been reduced by 5 per cent ad valorem and incandescent mantles are to pay 25 per cent and 15 per cent, instead of 40 per cent and 30 per cent. Arc and incandescent lamps are to pay 5 per cent (general), British being duty free.

A considerable number of agricultural, horticultural, and viticultural machines, including thrashers, are to pay 10 per cent (general), while British makes will be duty free. Other machines and implements of this class will pay 15 per cent (general) and 12½ per cent (British). The duties on weighing machines are 10 per cent and 5 per cent. Gas producers, flue heat economizers, mechanical stokers, steam traps, steam turbines, superheaters, and water purifiers will be free when British and charged 5 per cent when not British. The same scale applies to pulley blocks, pneumatic elevators and conveyors, steam turbo-blowers, telphers, and patent hoists for underground mining. The proposed duty on turbines was 25 per cent (British). Locomotives, traction and portable engines, steam road rollers, and scarifiers are to pay 25 per cent (20 per cent British). Feed grinders and sheep shearing machines are to pay 30

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per cent and 25 per cent. Rotary and percussive drills (20 per cent and 15 per cent) and coal cutting machines (5 per cent and free) are the other machines named in the tariff. All machines and tools not specially named in the tariff are to pay 25 per cent (general) and 20 per cent (British).

There are scores of alterations in the other divisions of the tariff, and one which is of general interest is the removal of the duty on catalogues, price lists, etc.

BRITISH INDIA.

INCREASE OF DUTY ON BEER AND OTHER FERMENTED LIQUORS.

Consul-General William H. Michael, of Calcutta, reports, under date of January 9, that by the Indian tariff-amendment bill which was passed at the last meeting of the imperial legislative council, the government of India has given effect to the recommendation of the late excise commission that the import duty on imported beer and the excise duty on beer made in India should be raised from 2 cents to 4 cents a gallon. In the term "beer" the new act also includes other fermented liquors which are classed with it in the tariff act, such as ale, porter, and cider.

BRITISH SOUTH AFRICA.

TARIFF COMMISSION APPOINTED IN TRANSVAAL.

Consul J. H. Snodgrass, of Pretoria, reports, under date of January 15, that in order to arrange some programme upon which to work at the forthcoming tariff conference of the colonies, the Transvaal government has appointed a commission to inquire into and report upon the following matters:

The condition of existing industries, manufacturing and agricultural, and the possibility of the extension of such industries.

What encouragement or protection should be given to such industries, and by what means and to what extent; whether by protective duties, bounties, railway rates, or otherwise.

What effect the customs union convention and railway rates, preferential or otherwise, and bounties have had on such industries.

In what proportions imported and local products or raw materials enter into local manufacturers and to what extent white labor is used as compared with colored labor.

To what extent the use of colored or Asiatic labor in the neighboring colonies is prejudicial to the continuance and establishment of industries in this colony.

What effect the customs union convention and the parcels post have had on the transfer of business to the coast and elsewhere.

The best steps to be taken to encourage and promote the trade and industries of this colony.

The desirability of amending the classification of the present customs tariff and in what directions and generally.

All matters relevant or akin to the foregoing terms of reference.

The consul states that it is pretty generally believed that this commission will suggest a reduction of the tariff on various articles of food.

CHINA.

CUSTOMS REGULATIONS GOVERNING ADMISSION OF MERCHANDISE.

The following provisional regulations for the transport of native or foreign goods to the newly opened ports of Manchuria have been issued by the Chinese inspector-general of customs with the consent

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of the revenue council, and are transmitted by Consul Wilbur T. Gracey of Tsingtau:

1. All foreign goods for which import duty has been paid at Tientsin, Newchwang, Antung, or Tairen (Dalny) or native goods on which coast trade half duty has been paid, unless they are to be transported into the interior either under inward transit pass or paying duty or likin at customs houses or barriers en route at the option of the merchant and as provided by the rules hitherto in force, if intended for transport by whatever means of conveyance to the newly opened ports in Manchuria may be provided with a special certificate exempting them from further charges.

Such special certificates shall be stamped in accordance with the regulations, and shall be surrendered within two months. On every application for such special certificates shall be stated over the signature of the applicant the name of the port of destination and unless proof of the arrival of the goods at the port of destination is produced within the time allowed at the customs house where the application was made, three times the half duty shall be paid.

An annual bond may be executed in the same terms and deposited with the customs, to save the inconvenience of executing a bond on every occasion. In the case of foreign merchants the bond shall be sealed by the consul, and in the case of Chinese by the customs. Anyone who has not executed an annual bond must put in a signed application on each occasion.

Forms of bonds and applications shall be fixed by the customs.

2. Goods transported under special certificates to the newly opened ports in Manchuria, in order to be in order, must correspond with the description of them given in the application. If they do not so correspond, they shall be regarded as having no special certificate, and besides the penalty of three times the half duty of the entire quantity due at the custom house where the application was made, the goods shall be liable to confiscation on arrival at the port of destination.

CUSTOMS STATIONS OPENED.

The Department of State has received a telegram from the American Legation at Peking advising that the customs stations at Manchuria and Pogranichnia were opened on February 5.

CUBA.

CHANGES IN THE CUSTOMS TARIFF.

The Gaceta Oficial of January 23, 1908, contains a decree issued by the provisional governor of Cuba ordering the following changes in the tariff:

I. That the following paragraphs in Class IX of the customs tariff be and the same are hereby amended to read as follows:

171. House or cabinet furniture of wood, wholly or partly finished, and manufactures of wood, or of which wood is the component material of chief value, not specially provided for—wicker and cane furniture, 25 per cent ad valorem.

II. That paragraphs 172, 173, 174, 175, and 176 are hereby abrogated, they being included in paragraph 171.

180. Esparte manufactured into fine articles; rushes, vegetable hair, cane, osiers, fine straw, palm, and genista, manufactured into articles of all kinds, not specially mentioned—T. (Disp. III, rule 5), 100 kilos (kilos, 2⅕ pounds), $13.

The following changes in and additions to the Cuban tariff were also promulgated by decrees of the provisional governor during the year 1907:

74. Zinc, lead, and other metals not specially mentioned in the tariff: (*g*) hammered in thin leaves (lead foil) and in capsules for bottles, kilo, $0.04. 113 (*a*) cordage and rope makers' wares of cotton, 100 kilos, gross weight, $6. 128 (*a*) braids and ribbons of cotton for reins, headstalls, and girths, kilo, net, $0.15. 142 (*a*) braids and ribbons of hemp, jute, linen, ramie, etc., for reins, headstalls, and girths, kilo, net, $0.17.

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It is further prescribed that emery cloth shall be classified under paragraph 315 of the tariff at the rate of 32½ per cent ad valorem. (Gaceta Oficial, August 24.)

162.—Cardboard paper, and pasteboard in sheets: (*a*) Cardboard paper, fine cardboard, and cardboard covered with glazed paper or with fancy paper, flowered, painted, embossed, or with any other kind of fancy work—T. (Disp. III, rule 5), 100 kilos, $3.50. (*b*) Other pasteboard, and those covered with ordinary paper, white or dyed, satined or not—T. (Disp. III, rule 5), 100 kilos, $1.

163.—Manufactures of cardboard paper or pasteboard: (*a*) Boxes manufactured from cardboard paper, fine cardboard, or pasteboard, such as has been enumerated in paragraph No. 162 (*a*) or with paper ornaments, or other materials which do not chiefly determine their value—T. (Disp. III, rule 5), 100 kilos, $7. (*b*) Boxes manufactured from pasteboard such as has been enumerated in paragraph 162 (*b*)—T. (Disp. III, rule 5) 100 kilos, $2. (*c*) Cardboard in sheets or otherwise, with or without tissue inside, impregnated with tar, pitch, asphalt, cement, or other analogous material, and used as roofing for buildings—ad valorem, 25 per cent. (*d*) Other manufactures of cardboard paper, fine cardboard or pasteboard, not especially mentioned—T. (Disp. III, rule 5), 100 kilos, $20. (Gaceta Oficial, November 14, 1907.)

The following decree has been promulgated by the Provisional Governor of Cuba, January 27, 1908:

That Order No. 206 from General Headquarters, Department of Cuba, issued September 28, 1901, by the Military Governor, in pursuance of the order of the Secretary of War, in compliance with the directions of the President of the United States of America September 21, 1901, in the part of the same which refers to paragraph 215, of the Customs Tariff in force, be and is hereby amended to read as follows:

215. Machinery and apparatus for making sugar and brandy:

(a) Complete machinery and apparatus applicable only to the manufacture of sugar whoever be the importer____ad valorem 10 per cent.[a]

(b) Machinery and apparatus for making brandy; and other apparatus and machinery and integral parts of same which having several applications for industry and agriculture are destined as auxiliary for the manufacture of sugar and brandy; provided that same are imported for or by planters who under such regulations and security as the Secretary of the Treasury may prescribe shall justify the installation of same on their estates_____ad valorem 10 per cent.[a]

Note I.—In the foregoing paragraph (b) shall be included the detached parts of the machinery and apparatus mentioned in paragraph (a) when imported separately; and by special concession fire bricks for the installation of boilers and furnaces, as well as the iron and steel houses, complete and knocked down, having or not glass or crystal parts, or other fireproof material, and the following material when imported for the construction or repairs of railways for the private use of the sugar plantations: Turntables, transfer bridges, iron or steel bridge work, riveted or rolled, iron or steel rails, points, crossings, signals, gate crossings, and metal ties, splices, fish plates, fish-plate bolts, spikes, frogs, semaphores, switches, and railroad ties of wood.

Note II.—Railroad rolling stock of any kind is excluded from this concession.

Note III.—In case that any of the private railways installed with the material imported under privilege of this decree, as well as under order 206, prior to this decree and hereby amended be declared for the public service, the importer, or in his absence, or in case of transference of the property, the estate, shall be compelled to pay the full amount of duties, under the corresponding paragraph of the tariff without any rebate or benefit. And these duties shall be collected since the date of the first importation made of such material.

This decree is to take effect thirty days after publication in the Official Gazette, i.e., February 28, and all other circulars and decisions prior to this decree and relating to paragraph 215 inconsistent with the same are repealed.

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[a] On imports from the United States the rate is 8 per cent ad valorem.

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HONDURAS.

EXPORT TAX ON GOLD AND SILVER.

Consul W. E. Alger, of Tegucigalpa, transmits the following translation of decree imposing export duties on precious metals:

Article 1. A tax of 12 per cent of its value is established on crude silver exported from the country. Article 2. A tax of 2 per cent of its value is established on gold in bars or dust exported from the country. Article 3. The fixed value of silver for purpose of the tax is 40 sols (the present value of a sol in United States currency is 49.9 cents) per kilo; of gold, 675 sols per kilo. Article 4. The disposition of this decree does not apply to mining enterprises that have concessions granting them free exportation of their metals. This decree goes into effect on date of its publication—December 10, 1907.

MOROCCO.

A GENERAL INCREASE OF DUTIES.

Minister S. R. Gummere informed the Department of State under date of February 6, 1908, that the additional duty of 2½ per cent ad valorem on imports into Morocco, authorized by article 66 of the general act of Algeciras, was to go into effect February 19, 1908. The former duty on most imports into Morocco was 10 per cent ad valorem.

SPAIN.

FREE ADMISSION OF IRON CANS AND OTHER RECEPTACLES.

W. H. Buckler, chargé d'affaires at Madrid, transmits a copy of a royal decree, dated December 2, 1907, which provides for the temporary admission into Spain free of duty of iron and steel cans and receptacles, including steel tanks commonly employed for the transportation of oxygen, provided such receptacles are brought to Spain temporarily, to be used in exporting domestic products.

TURKEY.

RESTORATION OF THE FULL RATE ON WHEAT AND FLOUR.

Consul-General Edward H. Ozmun, of Constantinople, reports, under date of February 26, that the temporary regulations of the Turkish Government, which prohibited the export of wheat and suspended the entire duty of 11 per cent on grain imported into Constantinople and reduced the duty of 6 per cent on imported flour, have been rescinded. From February 14, in the provinces, and from March 14, in Constantinople, the usual duty of 11 per cent ad valorem on grain and flour will be collected and the export of grain will be permitted.

VENEZUELA.

CHANGES IN CLASSIFICATION UNDER CUSTOMS TARIFF.

Minister W. W. Russell, of Caracas, transmits a decree, dated December 19, 1907, providing for the following classifications under the Venezuelan tariff:

ARTICLE 1.—From the date given by article 225 of law 16 of the Hacienda Code for the termination of the ultramarine periods [a] and which shall commence

[a] The ultramarine period is the time allowed for putting into effect new customs duties on articles coming from countries across the sea, viz, Europe, forty days; United States, twenty; West Indies, ten.

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to count from to-day, the following articles imported through the custom-houses of the Republic shall pay the following duties:

THIRD CLASS.

Marble in the rough, unpolished and uncut, as also marble slabs; the paving for vaults not being included in the term marble slab will pay fourth class as polished or worked marble.

FIFTH CLASS.

Blank books, patent medicines or medicines made by secret process which have been duly examined by the board of examination and classification of patent medicines and medicines made by secret process.

SIXTH CLASS.

Envelopes made up or half made up; Chintzes, Nainsook, calicos, cretons, "carlancanes," brilliantine, fine plaid goods which have more than 13 stitches of warp in a square of 5 millimeters, poplins, "malvinas," Japanese goods (japonesas), lustre (lustrillos), colored percales similar to the above and not mentioned in other classes such as cotton merino and colored cotton flannel.

SEVENTH CLASS.

Muslins, colored cotton crape goods, linen, gauze, barege, grenadine, organdy, zepher, cambric, "dulce sueno," tarleton, "imite," cambric, white or colored cotton batiste, smooth, worked, striped or bordered in pieces or cuts for dresses and any other kind of cloth similar to the foregoing not comprised in other classes.

The duty under the above classes is as follows: Class 3, 0.25 bolivar per kilo; class 4, 0.75 bolivar; class 5, 1.25 bolivars; class 6, 2.50 bolivars; class 7, 5 bolivars per kilo. One bolivar=19.3 cents United States currency; 1 kilo=2.2 pounds.

Another decree, bearing the same date, provides that wooden or paper boxes generally used for candy and handkerchiefs shall be classified under the fifth class of the tariff.

Minister Russell also reports from Caracas the following changes in the Venezuelan tariff since January 18, 1908:

Imported matches will be classified in the fifth class (1.25 bolivars per kilo). (1 bolivar=19.3 cents United States currency; 1 kilo=2⅕ pounds.) This does not alter the classification which the present tariff established for matches of "estrellitas" or for red lights.

Raw material remains in the fourth class. (0.75 bolivar per kilo.)

Ordinary black or clear glass bottles for bottling liquors, gaseous waters, and sterilized milk, and the quadrangular flasks of the same ordinary glass for bottling gin, imported from abroad, are classified in the second class (0.10 bolivar per kilo), with an additional 25 per cent.

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POTTERY.

METHODS OF MANUFACTURE.

MEXICO.

ANTIQUITY OF THE INDUSTRY—PRODUCTION OF THE CUERNAVACA WARE.

The pottery industry of Mexico, writes Special Agent Arthur B. Butman, is of ancient origin, having been handed down from father to son from time immemorial. Excavations among the prehistoric ruins of Mitla have resulted in the unearthing of many specimens of this handicraft, the designs of which are reproduced to this day. A description of the industry is appended:

Cuernavaca, Guadalajara, Puebla, and Oaxaca are the principal centers of the modern pottery industry, although pottery is manufactured in many of the smaller towns and villages throughout the Republic. The pottery manufactured in these cities possesses distinctive types and characteristics, each quite different from the others, and universally known and recognized by the name of the city where it is made.

Cuernavaca pottery is manufactured in the little village of San Antone, just outside the city of that name. The dwellers in practically every one of the adobe houses in the village are clay workers, and each house is a workshop. The only established plant is owned by an Englishman. Pottery is here made entirely by hand, and after the following process:

PREPARING AND MOLDING THE CLAY.

The clay, after being taken from the earth, is first thoroughly dried in the sun, then pulverized with a wooden mallet, and passed through the finest meshed brass-wire cloth, after which process the clay is finer than wheat flour. The former custom of the Indian was to use a handkerchief or a piece of cotton shirting for this purpose. For mixing, a fine slime is prepared by soaking a portion of the pulverized clay in water, passing it through a sieve, and afterwards mixing the dry clay and kneading to the right consistency.

A mold of the required size for the body of the article to be made is placed on the upper portion of the old style potter's wheel, covered with the proper thickness of clay, then patted and shaped with a wooden paddle and with the hands. The Indian potter turns the model about before him by scraping his bare toes on the lower portion of the wheel, and during the revolutions he continues to smooth the clay with a narrow strip of wet cloth until the desired surface is obtained. The narrow standard or legs, as the case may be, are then fashioned, and the article removed from the mold and placed in the same inverted position until such time as the standard shall have dried sufficiently to hold the weight of the body. Handles, spouts, etc., are all formed by the hands, without molds, and joined by means of the clay slime and prepared clay.

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DECORATING AND DRYING PROCESSES.

One characteristic peculiar to the Cuernavaca pottery is the inlaid decoration, for which small bits of broken china are employed. Other decorations principally used are molded reptiles and insects, molded leaves and flowers, and stamped work (Grecian and conventionalized border designs).

The making of the inlaid work is a slow and primitive process, and the execution of the many and often elaborate effects thus wrought is a great tribute to the artistic and patient Indian potter. The design to be used is first drawn upon thin paper, then placed on the damp clay and traced with a small sharp-pointed stick, after which it is slowly wrought by pressing bits of china of the proper shape into the clay, with the glazed surface on the outside. The article is now thoroughly smoothed with a wet cloth and placed in the drying room.

Molds for the formation of decorations are made in plaster of Paris from the live reptiles, insects, etc., so that each is perfect in detail. These decorations are formed by carefully pressing the clay into the mold and as carefully removing it. The edges are then trimmed and the molded decoration placed in the desired position on the article to be decorated, using the clay slime as a cement. In cutting portions of the clay preparatory to molding a crude tin knife is employed. For trimming edges a thread of fiber is used, one end being held in the mouth, the other in the hand. Stamps for fashioning the stamped decorations are made from hard wood, hand carved by the Indian.

During the drying process the pottery is watchfully shielded from sun and wind and a careful examination made each day of every piece in the drying room, so that, if possible, the molded decorations may be prevented from cracking. Should these crack before the articles are completely dried it is possible to replace the decoration, otherwise the article is valueless. While drying the handles and other delicate portions are wrapped in cloth, that the process may be equalized. At a certain time the molded decorations are well scraped and cleaned, and when thoroughly dry the pottery is polished with a piece of rough sacking and finally with a smooth cloth. It is now placed in the sun, to be completely heated before painting and burning. One color only is used in the painting of Cuernavaca pottery. This is a yellow clay from the neighboring mountains, similar to yellow ocher, simply mixed with water. The pottery is now ready for burning.

METHODS OF BURNING.

Here again we find a method most primitive. I was informed by the proprietor of the pottery factory that the habits of these Indian potters, together with a natural antipathy toward progressive usages, almost prohibits the introduction of new tools or methods. In fact, the workers refuse to substitute certain small modern tools purchased for the work, preferring their own crude ones.

No permanent kiln is used for burning, each individual process being accompanied by the building of a kiln of the size required in the following manner: A number of jars, approximately 18 inches in height and 9 inches in diameter, are placed on an open space of

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ground, as closely together as possible, between and around the outer edges of which is laid the fuel. Flat pieces of previously burned pottery are used to cover the jars and fuel, upon which are piled the articles to be burned. The whole is then completely covered with many "comales" (round, flat slabs, which are used for cooking the "tortillas," a sort of a pancake and universal peon food, by being placed over burning charcoal). The fuel is then set on fire, and when well alight green grass or wet hay is thrown over the pile. The necessary burning occupies about two hours, after which time and while red hot the kiln is uncovered. Each article is removed, being lifted by an iron rod, and allowed to cool in the air, which concludes the process of manufacture.

After burning the painted portions of the pottery will have turned to a dark terra cotta, and the unpainted portions, or such pieces as are wholly left in the natural color of the clay, will have changed from a dark gray to a light terra cotta color.

The principal loss to the manufacturer occurs during the drying process, almost no breakage resulting from the burning. The Cuernavaca potter will mold any design if a drawing with required dimensions is furnished him.

The Mexican Government recently ordered a Cuernavaca vase 32 inches high, with inlaid decorations of the American and Mexican flags and the American and Mexican eagles, as a gift to President Roosevelt.

The form of the lizard, so frequently employed in decorations of this particular pottery, owes its use to the existence of a lizard, nearly 9 feet long, carved on a rock, supposedly by the Aztecs, in the village of San Antone.

The wage of the potters ranges from 37 centavos to 1 peso a day, the foreman of the factory receiving 8 pesos a week (100 centavos=1 peso; 1 peso=49.8 cents).

THE GUADALAJARA POTTERY.

Pottery made in Guadalajara is probably more widely known than that of any other Mexican manufacture. The potteries are situated about 6 miles from the city proper, in the Indian village of San Pedro. Here another race of potters, true descendants of the Aztecs, live, handing down from one generation to another the knowledge of working this peculiar class of ware called by them "Zapotecas." Many of the original forms and designs mentioned in the records of the friars at the time of the conquest are preserved in the Guadalajara pottery of to-day, this being especially true of the ware known as the "Aromatic" pottery, which is colored in the burning.

The clays from which the Guadalajara potteries are formed are of two kinds, black and white. The black clay is found in veins 1 to 2 meters (meter=3.28 feet) below the general level of the ground, and is a formation of vegetable origin, as is proved by its peculiar odor and also by petrified remains. The veins vary greatly in length, but the width is usually from 3 to 4 meters. The white clay is more abundant than the black, and is very compact and heavy, being a subsoil formation, covering large areas and varying from one-half to 2½ meters in depth. It is a great detriment to agricultural interests in the region.

The black clay is prepared by simply dissolving in water, producing a very sticky substance. The white sort is thoroughly dried,

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pulverized, and passed through a fine wire sieve, then added to the wet black clay and well kneaded. For molding the finer forms the potter uses the substance as thus prepared. If flower pots, garden jars, etc., are desired, a fine sand is added.

EACH MOLDER A SPECIALIST.

Each family of workers are specialists in their line of work. Many forms and designs are produced, but only one design in one family. The potter who molds flower pots can not mold water bottles, nor can the one who molds water bottles mold figures.

I was informed by the proprietor of the important Guadalajara establishment that the transfer of work has been tried, but always without success. The worker teaches his son to perform the same task as his own, and should he have no son the knowledge of the special form or design of his work is lost at his death. By way of illustration, I was told of an aged Indian who had for many years furnished the firm with a special form of jar, known as the "Montezuma." The Indian died, leaving no heirs, and the loss of this particular article, which was naturally a rarity commanding a good price, resulted.

Unlike the Cuernavaca potters, the Guadalajara workers never use a potter's wheel. Here the small articles are made in molds and the larger pieces are formed by placing a mass of prepared clay on the ground, while the potter walks around and around the clay to be molded, using a piece of hogskin, well soaked in water, for forming and smoothing the article.

The tools which are employed are a piece or knife of tin, a wire for cutting or trimming, and a nail or small piece of pointed wood never exceeding 6 inches in length. A dish of water and some white clay in powdered form are placed near by for cleaning the clay from the hands during the process of molding.

PRODUCTION OF COLORS IN FIRING.

The Guadalajara ware is fired or burned in cylindrical ovens, with a hearth and no chimney, made especially for this purpose, different fuels being employed to produce the different colors. For the red-colored pottery a grass locally known as "tepopote" is used, which is found in abundance on lands having a volcanic formation in appearance much like pumice stone. Such lands are called by the natives "jal," and from their formation it is said the State takes its name of Jalisco.

When a grayish-white color is desired, the pottery is burned with twigs of "taray" (tamarisk), or shavings may be used. It is impossible to employ wood or coal of any kind, as the necessary requirement is the flame rather than the heat. The burning process occupies about twelve hours, more or less, according to the size of the oven in use.

The colors employed are mineral, manganese for the black, kaolin for the white, while the reds and yellows are of special kinds of clay. Water bottles, for instance, which are often made in red or yellow colorings, are first painted and then burned, painted while still warm, and again subjected to the flames of dried grass, which burns with much smoke.

The bright greens, blues, etc., are obtained from pigments mixed with gum, varnish, or oils, and, not being fired, these colors will in

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time wear off. Those interested in the manufacture of Guadalajara ware endeavor to have preserved the old forms, strictly Indian, rather than attempt to produce copies or imitations of forms more modern.

However the ancestry of the primitive Mexican Indian may be decided, it is certain that the decorations or paintings, which are all of Indian origin, on Guadalajara pottery very closely resemble Chinese decorations.

The wages paid here are approximately the same as in Cuernavaca, the most expert potter receiving not more than 1 peso a day, and working from 8 a. m. to 12 m. and from 2 to 6 p. m.

PUEBLA AND OAXACA POTTERY.

The Puebla pottery is a more or less crude earthenware, having a white, or rather grayish-white, ground, with decorations usually in the delft blue shades, although browns and yellows sometimes appear. The Puebla tiles are a famous characteristic of the city of the same name; in fact, Puebla is a city of tiles. They are everywhere used—on the domes of churches, the façades of residences, and on walls and floors. The decorations are usually medieval in design and, though somewhat crude, not inartistic. Puebla ware is known as "Talavera."

The pottery made in Oaxaca is a green glazed ware, and includes articles for table and kitchen use.

The principal output of all varieties of Mexican pottery is at present for domestic use. With the exception of that purchased and sent to the United States by American tourists very little is exported.

[Seven photographs of Guadalajara and three of Cuernavaca pottery accompanied the report and are on file in the Bureau of Manufactures.]

CHINA.

REVIVAL OF THE ART OF PEKING CLOISONNE MANUFACTURE.

The following report on the subject of the Chinese manufacture of cloisonne at Peking is transmitted by Consul Wilbur T. Gracey, at Tsingtau:

Probably the finest quality of cloisonne now manufactured is that which comes from Peking. The Industrial Mission Depot, a branch of the Peking Industrial Institute, has recently been opened at Shanghai, where a large supply of cloisonne is always on hand, and where vases, bowls, jars, plates, boxes, incense burners, water pipes, umbrella handles, cigar boxes, napkin rings, etc., can be purchased at any time. Goods are packed by this depot and shipped to all parts of the world. The cloisonne exhibit of the Peking Industrial Institute was awarded a gold medal at the St. Louis Exhibition of 1904. The following quotation regarding the manufacture of this ware will be of interest:

> The base, whether vase, bowl, or dish, is of copper and is obtained ready made from the coppersmiths. The design is then etched on the copper base, and delicate copper ribbons are shaped by means of pincers to follow the lines of the design. These are cemented into position by means of a special vegetable glue, fortified by a metallic composition, which maintains the shape of the wire tracery while it is being annealed in a primitive oven surrounded by a wire cage containing charcoal, which is kept at a red heat with fans.

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When cool the vase is scoured in an acid decoction and is then ready for coloring. An artist, supplied with a number of saucers containing all the colors he requires, takes the vase, and, from memory, and without reference to any illustration, fills in the interstices between the wires (the cloisons) with the proper pigments. These consist of crystals with a base of saltpeter and a kind of calcareous sandstone found in the neighboring hills. The different colors are obtained by composition with iron pyrites, oxides of iron, or salts of lead. The colored crystals, ground to a powder, are mixed with rice water, and the resulting paste forms the base of the enamel. The colors are applied by means of a small trowel, and the operation calls for great skill and dexterity.

When all the spaces are filled the vase is again baked in the oven for a certain number of minutes, as decided by the expert in charge of this operation. When cool the vase is smoothed off with a file and returned to the coloring room, where all defects are made good. In some cases several of the spaces must be done over again; the solid vitreous color is chipped out and the cloison refilled with paste.

The vase is again baked and polished, this time with limestone, on a lathe. The retouching, rebaking, and polishing are continued until the desired result is obtained. The final lathe polishing is done with charcoal.

The vase is then ready for gilding, which is done by an ordinary galvanic process and a final polishing renders the article ready for the market.

AUSTRIA.

COMBINE OF CHINA MANUFACTURERS—EFFECT ON PRICES IN AMERICA.

Consul John Steel Twells reports that on November 25 the 24 largest china manufacturers of Austria held a meeting at Carlsbad at which it was determined to form a trust with the object of increasing the price of china goods and to establish two different market values, viz, one for Austria and another for the United States. The consul adds:

It is pretended that the class of china goods exported differs materially from that sold in this country, and therefore two different market prices will be established. This trust formation will greatly interest china dealers in the United States, and may encourage our manufacturers of china goods to increase their own production.

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DRUG TRADE.

PRODUCTS AND MARKETS.

ASIATIC TURKEY.

DEALERS IN OPIUM AT SMYRNA EXPERIENCE CONSIDERABLE LOSSES.

Consul Ernest L. Harris says in a report from Smyrna that among the manifold products of Asia Minor none possesses a greater degree of importance, as far as the commercial interests of the country are concerned, than does opium, which leads him to furnish the following trade information:

Opium is the most important and valuable drug exported from this country. The crop is usually brought to the Smyrna market about the end of July or the beginning of August. If the opium has been well dried, it soon finds a purchaser; but if it is damp it becomes a drag on the market. Dry opium, therefore, fetches a better price. That which is intended for export to foreign countries is packed in zinc-lined wooden cases and hermetically sealed.

The price of opium in the Smyrna market is influenced by various conditions. Among the first is, how much has been left over from the last season, and especially whether the London market has been able to dispose of all that it had on hand. For some thirty years past the American market has also exerted considerable influence upon the supply and demand. The fluctuation in prices is primarily due to speculation. People speculate in opium in Smyrna, London, New York, etc., and there are sometimes such irregularities in prices that it costs more per pound in Smyrna, the origin of the article, than it does, for example, in America.

YIELD AND PRICE QUOTATIONS.

In former years opium was sold in two qualities, namely, that which was examined and cleaned and that which was left uncleaned. An expert examined each basket, loaf by loaf, carefully removing those of a dark color, together with any extraneous matter. Twenty years ago, however, this method was abandoned. Although the expert examiner is still retained, yet the examination is said to be considerably less rigid than formerly.

Many efforts have been made in Europe to produce a quality of opium equal to that of Smyrna. But the attempts have been failures, for the reason that the Asia Minor product contains, on an average, about 10 per cent of morphine. Opium merchants in Smyrna say that the output in this country one hundred years ago amounted to something like 500 baskets of 165 pounds each. In 1850 it had increased to 3,000, and 1875 more than 5,000 baskets. The annual output now varies anywhere between 4,000 to 8,000 baskets. The largest yield ever known was in 1902, when it amounted to 11,000 baskets. The 1907 crop was 4,000 baskets, against 9,000 in 1906, 3,500 in 1905, and 10,000 in 1904.

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If the output of opium has been very irregular, the governing prices have been equally so. In 1850 opium sold for $6.65 to $8.55 per kilo of 2.2 pounds. In 1869 it had reached the maximum price of $30 per kilo, or about $15 per pound. To-day it sells for $2 to $3 per pound.

PRESENT AND PROSPECTIVE MARKET CONDITIONS.

The year 1907 was not a good one for Smyrna merchants dealing in opium. To begin with, there was a shortage of about 5,000 baskets as compared with 1906. Then, again, they thought the market might be controlled somewhat by buying up foreign opium at high prices. But European buyers were slow to respond to the higher prices, with the result that Smyrna merchants have been compelled to sell at the old figures, with a considerable marginal loss on what they had purchased abroad. Some say that $300,000 to $350,000 has been lost in this way. At present most of the 1907 crop still remains unsold.

Many merchants, however, still have hopes of disposing of last year's crop on a favorable basis for the following reasons: The outlook for 1908 is not good. At the time of planting last fall no rains came to render the soil pliable, so that the poppy seed could be covered in a satisfactory manner. It is also reported that there is but little stock on hand in Constantinople, Saloniki, London, and New York. The hopes placed in Persian opium, as a substitute for the Smyrna product, seem not to have been realized, owing to the fact that it contains only about 6 per cent of morphine, while that of Smyrna has 10 per cent.

The statistics of this consulate show that $388,205 worth of opium was shipped to the United States during 1907. [A treatise on the culture of the opium poppy forwarded from Smyrna by Consul Thomas H. Norton may be perused at the Bureau of Manufactures.]

SALVADOR.

THE UNITED STATES LEADS IN PHARMACEUTICAL SUPPLIES.

Consul-General Samuel E. Magill, of San Salvador, reports that the trade in drugs and medicines in Salvador is conducted, with few exceptions, by native pharmacists, who are required to pass careful examinations before a special board, and the Government exercises careful supervision over the conduct of the business, particularly as to the sale of poisons and anesthetics, as well as to the capacity and intelligence of the prescription clerks. He adds:

American drug and medicine exporters have evidently paid attention to this field and as a result have made a good showing in comparison with those of European countries. In general the following is the way the local drug trade is divided as to source of supply:

United States.—Medicinal soaps, medicated cotton, rubber goods, tooth powders, medicines in pills, gauze for wounds, paper goods, patent medicines, brushes, special preparations, dental articles, and medicinal wines.

Germany.—Basic drugs and chemicals, toilet soaps, perfumes, patent medicines, and essences.

England.—Salts, toilet soaps, and patent medicines.

France.—Perfumes, toilet soap, patent medicines, glass tubes, syringes, etc., apparatus generally, and toilet powders.

Some few specialties are brought from Italy and Spain.

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AMERICAN PATENT MEDICINES—EUROPEAN ADVANTAGES.

American patent medicines hold the market here for the sole reason that they are more extensively advertised. Such European compounds as are advertised find ready sale also, so it is not a question of nationality so much as willingness to advertise in newspapers, and by means of fancy cards and pictorial almanacs create a demand that druggists must supply, and the demand exists as long as the advertising is pushed.

Salvador, being somewhat difficult of access, traveling drug salesmen rarely canvass this territory, and most of the business is done through price lists and special catalogues. In the matter of lists the local druggists prefer those prepared by German and French houses as being better arranged and more complete.

American houses pack their goods as well as those of Europe, but can improve by making packages lighter without sacrificing strength, as duty is paid on gross weight. European houses have the advantage over American houses of a parcels-post treaty whereby small orders, needed quickly, are placed in Europe rather than in the United States. Liquids are frequently shipped this way and almost invariably arrive in good condition.

ROBBERY COMPLAINTS—TIME PAYMENTS.

One drug house complains of greater proportion of robberies from American than from European shipments. It is believed that this trouble occurs at points where packages sometimes remain in warehouses for months awaiting shipment. Such losses from American shipments are borne by the local consignee, as insurance taken in America does not cover from shipper to consignee as does European insurance. This has such an effect on trade that it would be well for American drug exporters to investigate the truth thereof and rectify it if possible. Whether true or not, it is a fact that packages that should contain perfume, soaps, and other valuable articles have reached here entirely empty, the merchandise having been replaced by stones or dirt. The American shipper gives no redress to the consignee for such loss, whereas under almost similar conditions in shipments from Germany and England Lloyds agents here have certified to such loss and the insurance company has paid it.

Some local druggists state the longer time for payment offered by European shippers results in loss of trade to American houses. This subject has been much discussed and is one that the shippers are doubtless familiar with and must settle to suit their own interests. To increase their trade in Salvador American drug supply exporters might look well into the following points: Greater advertising of patent medicines; lighter packing without sacrificing strength; secure insurance clear through from house of shipper to house of buyer; more time for payment without increase of price; parcels-post treaty; investigate and prevent robberies en route; improve catalogues and make lists more convenient and print both in the Spanish language.

Most of the American houses, especially two of them, have the confidence of the local consumers, who seemingly would like to increase their purchases of American goods, so it might be well for a Spanish-speaking agent to cover this field occasionally and get the direct and technical information to accomplish that end.

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GERMANY.

HISTORY AND EXTENT OF THE TOILET-WATER INDUSTRY IN COLOGNE.

Vice-Consul Charles Lesimple, writing from Cologne, states that German manufacturers are averse to giving information concerning the making of toilet water, but that he has secured the following:

The toilet-water industry in Cologne was established in the beginning of the seventeenth century. At that time the city numbered about 50,000 inhabitants, while the present population is 450,000. Cologne gained preeminence in this industry through the inventors of toilet water (Eau de Cologne). These were Paul Feminis and Maria Clementine, a Catholic nun, who came to Cologne, where for many years they manufactured the Eau de Cologne, and so founded the toilet-water industry of this city. This was begun on a small scale, with only few persons employed, whom they did not initiate into the secrets of the whole process, the last and most important mixture being made by the inventors themselves. Paul Feminis left the secret with the Farina family, while the nun bequeathed the secret to one Peter Schaeben, who had been her assistant for many years. Both families still carry on the business and are the leading manufacturers.

The importance of the industry is by no means great enough to make the city dependent upon it. There are about 30 manufactories of Eau de Cologne in this city, 5 of them being of importance. They each employ on an average 10 men. The wages paid to employees vary between $1.25 and $2 per day, while the office men receive salaries, according to their ability, ranging from $1,500 to $2,000.

It is difficult to approximate the money invested in the business, but it may be stated that the outlay by the different firms varies from $10,000 to $200,000. The toilet-water industry is confined to the city of Cologne. The chief countries making purchases are England and its colonies, Austria, Russia, etc.

PROPRIETARY MEDICINES.

STRICT REGULATIONS GOVERNING SALES—NO IMPORT DISCRIMINATION.

Responding to an inquiry from an American firm concerning the introduction of proprietary medicines into Germany, Consul-General A. M. Thackara, of Berlin, says:

All medical preparations imported into Germany, no matter from what country, have to pay duty as secret remedies (Geheimmittel) amounting to $119 per 2,204 pounds, unless the exact composition of the ingredients is given, not only to the customs authorities, but is also printed openly on the packages.

The police authorities reserve the right also to have analyses made of such preparations by competent experts, and they may even raise an objection if an exorbitant price is charged, when the value of the separate ingredients is considered. These authorities may at their discretion even publish the selling price of patent medicines, together with the cost of each ingredient. The regulations governing the importation and sale of proprietary medicines in Germany are exceedingly strict, but I can not say that there is any unusual discrimination against those made in the United States.

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GREECE.

CULTURE, PREPARATION, AND EXPORTATION OF THE HASHISH DRUG.

Consul Edward I. Nathan, of Patras, contributes the following report on the Greek preparation and exportation of the hashish drug:

Hashish, that strange drug which has given our language its word assassin—a man so frenzied by the drug that he accomplishes murder—and which is used by the Persians, Turks, and Egyptians in a manner akin to the use of opium by the Chinese, is the product of a plant grown in large quantities in the Peloponnesus (southern Greece) in the district about Tripolitza. The plant grows to a height of about 4 feet and its branches are thickly covered with small leaves and studded with tiny seeds.

The entire plant, stalk and branches, is cut within a few inches of the root and laid out in the sun to dry. The branches are then rubbed to separate the seeds and these in turn are ground into a fine powder, which constitutes the drug. The best variety of the plant grows in the district of Mantinea, and the center for export is Tripolitza, from which place it is sent to the ports of Kalamata and Nauplia, and from thence abroad. It is estimated that about 100,000 okas (265,000 pounds) of the drug, valued at 2,000,000 drachmas (about $350,000) are annually sent from Tripolitza.

The drug has the power of inducing sleep and producing pleasant and fantastic dreams. Continued use of hashish renders its devotees wild and restless, and results in a complete wreck of their mental and physical constitution. For this reason the Egyptian Government has prohibited the importation of the drug, and recently entered into a convention with Greece to prevent its exportation from there to Egypt, where the consumers of hashish are very numerous. The drug is practically never used in Greece, but is now exported to the various ports of England, Austria, France, and Italy, and from there much, no doubt, ultimately finds its way to Egypt.

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MISCELLANEOUS.

FOREIGN PENAL INSTITUTIONS.

BRAZIL.

PERNAMBUCO'S CONVICT COLONY ON THE ISLAND OF FERNANDO.

Consul George A. Chamberlain, of Pernambuco, has prepared the following report on the resources and possible development of the Brazilian archipelago of Fernando de Noronha, situated just 300 miles northeast of Recife de Pernambuco:

This island group has been the subject of various industrial concessions, but is at present more of a sidelight to penologists than a bone of contention among capitalists. The history of the group, which consists of one big island distinguished by a rock peak 1,000 feet high and 17 smaller isles, goes far back in the centuries. In 1504 the group, then known as St. Johns, was granted by the King of Portugal to a cavalier, Fernão de Loronha, and according to the Capuchin monk Claude de Abbeville, who visited the islands with the French expedition against Maranhao, a penal settlement was already established in 1612, composed of a score of men, women, and children. A master of the soil received exiles from the mainland, who became virtually his slaves.

This small beginning grew under the Brazilian Empire into one of the greatest penal settlements in the world. As a national prison the islands attained a population of 3,000. In 1887 this number had fallen off to 2,351, of whom 1,434 were convicts. A few years ago, however, the National Government ceded the archipelago to the State of Pernambuco and all other States were forced to withdraw their convicts.

PRESENT STATUS AND PENAL COLONY OPERATIONS.

The penal settlement is now the penitentiary for Pernambuco alone, a State with an estimated population of 1,250,000. Since there is no capital punishment in Brazil, Pernambuco is obliged to imprison its murderers and at the end of 1906 there were 355 man killers in Fernando out of a total of 442 convicts. This large number of criminals increased during 1907 to over 600, two-thirds of whom are undergoing the penalty for murder. Of the 400 murder convicts only 7 are women. Those convicts who are married and have their families with them are allotted little huts in the village. Trusties are given posts of responsibility and only newcomers and suspects, numbering approximately 200, are kept locked up during the night.

The convict island is 5 miles long and about half as wide. With only a little rain, it is wonderfully fertile and Fernando cotton is of

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a superfine quality, commanding a special quotation in the market. Aside from cotton the island produces in large quantities corn, beans, mandioc, and pumpkins. It is one of the most orderly and productive bits of tilled ground in all Brazil, and shows what might be accomplished in this country in the way of general agriculture under systematized labor.

The routine at Fernando is systematic. The 600 convicts are called to the fields at 6 in the morning and work until 2 in the afternoon for the State; after that and until 6 they may work for themselves, the State allotting to each a plot of ground.

The director is allowed a squad of 30 of the State police to control the convicts, and he consequently is dependent upon a combined system of trust and espionage to frustrate the frequent attempts at escape. No trees suitable for rafts are allowed to grow on the island and the trusties who are allowed to fish are allotted tiny catamarans, far too small for sea use. A Government-chartered steamer makes a trip from Pernambuco once a month. Economically Fernando de Noronha is one of the cheapest prisons in the world.

INDUSTRIAL FEATURES.

The Fernando group holds the distinction of being the rock upon which the great equatorial and south equatorial currents divide, incidentally forming a triangular sea of quiet water between the archipelago and the mainland. This quiet water teems with fish of every description, prominent among which is the bicuda, a fish likened by some to the barracuda of the West Indies, but which in size and flesh, when dried, has more the appearance of the northern cod. The bicuda is caught by hand, salted and dried in small quantities, and occasionally a few bundles find their way to the mainland. Indicative of its market possibilities it may be stated that in 1906 the Great Western of Brazil Railway carried from Pernambuco alone to the interior 9,347 tons of dried cod imported from Newfoundland. A delicious sardine also abounds in the Fernando fish preserve and could be tinned in large quantities on the island for the inviting and steady market of South America.

These are merely two of the many inducements to the securing of a fisheries concession. A third feature is the assured labor at a nominal price, the fixed wage of a convict being about 10 cents a day. Fernando also presents an excellent stopping place for ships on the Europe-South America run, which pass within signal distance to the number of about four per day. The island is also not far off the New York-South America course. As a coaling and provisioning station it would immediately attain preeminence in the South Atlantic, taking the place in the southern ocean of St. Vincent, Funchal, Barbados, St. Lucia, and of St. Thomas in the northern.

As to these opportunities it should be remembered that there are the usual obstacles to government concessions in Brazil. Privileges can no longer be had for the asking and in every current case there is competitive rivalry in every step toward a franchise. Should Fernando become a coaling station its large deposits of phosphate of lime, now rendered worthless on account of high freights, would immediately become available and of great value.

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The island is now a part of the State of Pernambuco, but there is a bill before the State Congress which contemplates returning it to the Federal Government. Sea concessions in any case would have to be obtained from the latter and it is probable that the island will never become an industrial or commercial success unless through the cooperation of the National Government.

CHINA.

ADVANCED SYSTEM OF HANDLING CRIMINALS AND TRANSGRESSORS.

Vice-Consul Ernest Vollmer, writing from Tsingtau, says that one of the unfailing signs of the influence which contact with Western civilization and methods has upon the Chinese is evident in the gradual alteration of the systems of punishment of crime in vogue throughout the Empire. The vice-consul gives the following illustrations of this tendency:

The ordinary punishment for minor crimes for ages past has been beating, or "bambooing" as it is locally called. In the Ching Chou-fu district of Shantung this has been entirely done away with during the past few years, and a compulsory penal servitude substituted. This sentence is now used for petty larceny, vagrancy, disturbing the peace, and all similar transgressions; while professional beggars, cripples and fakirs of all classes are also put to work in these public institutions.

Reporting on the station under his care the police magistrate of Loanhsien, in the district named, states that the long-deserted and neglected governmental buildings in his city have been restored during the past year, by penal labor, and are now used as an industrial institute, where minor criminals are kept busy at useful and remunerative work. Aside from the reconstruction of 3 large work halls, a wash and bath house has been completed, and a modern sick ward erected. The interior is so arranged that the inmates are divided according to age and the misdemeanor for which they are interned, while the guards and supervisors watch them through a wicker partition.

Close at hand is a new administration building where the officials live and the offices are located; a general mess hall and kitchen; and a schoolhouse, where young men from the district are taught useful crafts and trades free, if they desire this education. This school was organized in compliance with a demand from the inhabitants of the district. A large farm, connected with the old Government establishment, is tilled by the inmates of the place, and returns a considerable revenue, aside from supplying much of the food needed.

The cost of maintaining this quasi prison is nearly met by the institution itself, a deficit of but $450 last year being the whole amount that stood between it and self-support, even after all salaries of officials and teachers had been paid. A similar "school of correction" is located at Itukhsien, and from the success of these pioneer attempts at social betterment of Shantung it may fairly be assumed that before long every young man of the province who goes wrong will have an opportunity of learning, free, a trade which will enable him to materially better his position in society.

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MORTUARY OBSERVANCES.

AUSTRIA.

CREMATION NOT PERMITTED—DISPOSITION OF BODIES.

Consul-General W. A. Rublee, of Vienna, transmits the following concerning cremation in Austria:

Up to the present time the cremation of the bodies of the dead is not permitted in Austria, and such cremation, when desired, is effected in the nearest crematory of a foreign country. There is a large and active society, with its headquarters in Vienna, having for its purpose the agitation of the subject of cremation, with a view to obtaining the consent of the Government for the construction of crematories in Austria.

An American citizen traveling in Austria who wishes to provide for cremation in the contingency of death should take the precaution to execute a testamentary disposition to that effect and to have it with him. This will be quite sufficient, and the remains will then be sent to the nearest crematory in an adjacent country. The transportation of the remains is done by all undertaking establishments, and the cremation society in Vienna, "Die Flamme," also performs this service. If the transportation is placed in the hands of "Die Flamme" at Vienna, the society guarantees that only the actual cost of such transportation will be charged, whereas in provincial cities this is often not the case and the charges are sometimes very high. The difference in the transportation of dead bodies and of ashes is considerable, as a whole car must be secured for a body, and the ashes of a cremated body may be sent by parcels post in a tin box. Inasmuch as there is no cremation in Austria this question does not arise, unless the ashes are sent back to Austria after cremation of the body.

ENGLAND.

REGULATIONS GOVERNING THE CREMATION AND BURIAL OF FOREIGNERS.

In replying to a Boston inquiry upon the subject of cremation in London, and the disposition of the body of a person dying in that city who had been domiciled in the United States, Consul-General Robert J. Wynne supplies the following information:

If a citizen of the United States be traveling abroad, unaccompanied, it would be well for him to carry in his satchel or pocketbook written instructions as to what he desires should be done in the event of anything happening to him. The envelope containing such instructions should be headed: "Instructions in the event of my death." Inclosed he should give his home address, or the address of a friend, in the United States, so that communication could be made, or the address of any friend or business connection on this side could be mentioned with the same object, and for the purpose of obtaining necessary funds. I have been informed, on credible authority, that a person has no legal right to control the disposition of his remains, although I have no doubt relatives or friends would respect the wishes of the deceased.

In the event of the death in this country of a person domiciled in the United States, at any of the hotels, an undertaker is at once

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called in and the remains removed therefrom, provided always the deceased has had proper medical attendance, and that the doctor attending gives a certificate of death. If the death is sudden, the coroner of the district is at once notified and an inquest is held, the body in the meantime being removed to a public mortuary pending result of the inquest. If the verdict of death from natural causes be rendered the coroner signs an order and gives it to the representative of the deceased, who instructs the undertaker what to do. The transportation of the remains is in the hands of the friends or the representative of the deceased, and is not controlled by any local or government authority.

Should it be desired to exhume a body for reinterment in the United States, such removal is governed by regulations, for example: If the remains have been interred in consecrated ground (consecrated ground in accordance with the rites of the Church of England) permission has to be obtained from the ecclesiastical authority of the district in which the interment took place. If the interment took place in "unconsecrated ground," the permission of the Home Secretary has to be obtained, and such permission must be secured through the medium of the American embassy.

The facilities for cremation in London are ample. [Several inclosures transmitted by the consul-general covering the laws, regulations, and facilities governing cremation in London are on file in the Bureau of Manufactures.]

BRITISH INDIA.

CREMATION OF FOREIGNERS WHO DIE IN CALCUTTA.

Consul-General William H. Michael, of Calcutta, states that the remains of a foreigner dying in India may be exhumed and cremated and sent home, while the Government, except in rare instances, would refuse to allow the body to be exhumed and shipped home without cremation. [The "Directions with regard to Cremations at the Calcutta Municipal Crematorium" issued by the Cremation Society of Bengal has been forwarded by the consul-general and may be inspected at the Bureau of Manufactures.]

SPAIN.

NO REGULATIONS REGARDING THE CREMATION OF BODIES.

Vice-Consul Maddin Summers, of Madrid, states that in Spain there are no regulations regarding the cremation of bodies, either providing for or prohibiting it, but as there are no arrangements for this manner of the disposition of bodies it would be difficult to have it done. Foreigners who die in Spain are either buried in a foreign cemetery or are taken back to their homes. For shipment the remains must be embalmed and sealed in a double coffin.

BELGIUM.

BODIES FOR CREMATION MUST BE SENT TO FRANCE OR ENGLAND.

Vice-Consul-General Gregory Phelan, writing from Brussels, says:

There are no crematory ovens in Belgium, the nearest being at Paris and at Woking, near London. In order to be cremated any American citizen in Belgium should have on his person all necessary

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papers, such as passport, certificate of birth or registration, and a letter expressing his desire to be cremated, and sufficient money to enable the local authorities to pay for the transportation of the body to the nearest crematorium, and for other expenses. The cost of transportation to Paris is $33.16 and the cost of cremation $75.24, making the total expense, exclusive of coffin and hearse, etc., $108.40.

All bodies to be transported to the United States must be embalmed, and the cost of such transportation is $101.32, while the transportation of ashes is $25.

HUNGARIAN EMIGRANTS.

NEW EMIGRATION AND INSPECTION BUILDING AT FIUME.

Consular Agent G. Andrews Moriarty, jr., furnishes the following particulars concerning the building at Fiume nearing completion, designed to accommodate Hungarian emigrants while undergoing inspection preparatory to their sailing for their destinations:

The building, which is to be completed on March 15, 1908, at a cost of $305,000, is of the most modern style, of steel frame and concrete, lighted throughout by electricity, and heated by steam. The ventilation is accomplished by electric apparatus, and the window spaces are very large. The building stands on the west side of the town, on the Vie Volosca, and the railroad passes on one side, so that the emigrants can enter it at once.

The building has 4 stories, the first 2 containing inspection rooms, sleeping rooms, hospital and eating rooms, while the 2 upper are composed exclusively of sleeping apartments. It will accommodate, in all, 2,000 emigrants.

At the eastern side of the building is a large hall not yet completed, through which the emigrants enter. This leads into another hall, where the emigrants are inspected by the doctors. From this, on each side, are 2 dressing rooms, 1 for men and 1 for women, whence the emigrants go to the bathing rooms. There are in the men's bathing rooms 14 shower baths, while the women's room is supplied with tubs of hot and cold water. Their clothes are taken, meanwhile, to be disinfected, and there are 2 large disinfecting machines, and a large room or hall for storing disinfected baggage. There are also rooms with tubs for washing, drying, and ironing the emigrants' clothes. In the basement are 2 large sleeping rooms for men and women, the former containing beds for 140 and the latter for 80 persons. There are also 2 rooms for rejected emigrants, 1 for men, containing beds for 70 persons, the other for women, containing beds for 60 persons, with wash rooms attached.

MAIN BUILDING EQUIPMENT.

The first floor contains a great entrance hall with offices and an office for the Adria Navigation Company. In the east wing are 2 large sleeping halls for persons the first night before they have been thoroughly inspected by the doctors. The room for men contains beds for 240 persons and has a wash room with 16 wash basins fitted with cold water. The women's room contains beds for 160 persons with a wash room also attached. On this floor is a hospital ward, con-

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sisting of 2 rooms, with a fully equipped bathroom attached, and a room for infectious cases with 8 beds. All these rooms are lighted by large windows. The west wing contains official rooms and official dining rooms. There is a large dining hall 98 by 56 feet, in which are installed, behind a serving counter, 10 steam stoves and 1 large gas stove for roast meats. The dining hall accommodates about 2,000 persons. Beyond this toward the center of the building there is another hall containing fruit sellers, wine and liquor rooms, and a post-office.

The 2 upper stories consist exclusively of sleeping apartments, and are exactly alike, so that a description of one floor answers for the other. Each floor contains 24 sleeping rooms for families, 18 for 8 persons each and 6 for 12 persons each. In addition there are 19 sleeping rooms on the first and second floors, exclusive of the family rooms. There is between every 2 sleeping rooms a large living room, and to every sleeping room there is attached a washing room. Each story is 20 feet high. All the rooms are ventilated by electricity, have electric lights, and are heated by steam. The wash rooms are fitted with running water and set basins. The roof is made into a terrace, with stone seats, as a place of recreation. Each floor is equipped with a fire hydrant.

The building is extremely modern and is equipped with every modern comfort, being airy, well lighted and up to date in all respects. All the building material came from France, which should be a reminder to American contractors to keep a lookout for such undertakings.

AMERICANS LIVING ABROAD.

REASONS FOR REQUIRING REGISTRATION WITH CONSULS.

The American Society in London has published in the Times of that city the following letter of reply from the Hon. Elihu Root, Secretary of State, in regard to the requirement of American consuls that they shall make returns to the Department of the registrations of American citizens residing in their respective districts:

In reply, you are informed that paragraph 172 of the Consular Regulations relative to registration is of long standing, being in the Consular Regulations of 1880, and the Executive Order of April 8, 1907, merely reaffirms the regulation with an amendment requiring consuls to make returns of registrations to the Department.

The regulation requires principal consular officers to keep a register of American citizens residing in their several districts, to make known that such a register is kept, and to invite all resident Americans to cause their names to be entered therein. Its object is to obtain a record of American citizens abroad, in order that the Government may be better prepared to protect them by knowing who are entitled to protection, and to afford them an opportunity to make their American citizenship a matter of official record. The regulation provides that the same general principles govern applications for registry as govern applications for passports, and the Department desires native, as well as naturalized, citizens to register, as the information thus obtained may be as necessary in their case as in the case of naturalized citizens.

As you are aware, an American citizen residing abroad is held by this Government to be entitled to its recognition as long as he maintains in good faith his American citizenship; and the Department does not deem it a hardship nor an infringement upon his rights to urge one who resides abroad and is for that reason free from performing those duties of citizenship which are exacted

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of a citizen who resides within the jurisdiction of his Government to inscribe his name on a register and to state the facts concerning his foreign residence to a representative of his Government.

It is frequently of great importance for the State Department to know without any delay how many American citizens there are in a foreign country where they reside, in order to determine its attitude in regard to movements and measures which may affect their interests. This can only be done by means of such a registry as is called for by the regulation.

COMBINED STOPPER AND POURER.

SIMPLE BUT INGENIOUS MECHANISM INVENTED BY A SOUTH AMERICAN.

Consul-General Alban G. Snyder, of Buenos Aires, states that it is reported that a large oil dealer in that Argentine city has invented a stopper and pourer for vessels containing marketable liquids which at the same time offers no projections to prevent its packing and storage. It is thus described:

The invention is very simple, consisting of a conveniently shaped discharge spout, which, when not in use, lies in an inverted position inside the vessel, and the butt end of which, closed by a small plate and secured by a ringed cap screwed over all, forms the stopper proper.

Other advantages claimed for this stopper are that it lies in a small hollow in the outer surface of the vessel which it closes and thus lies flush with such surface; that the ringed cap is raised slightly above the level of the closing plate secured by it, so as to form a depressed round space intended to receive the seal of the manufacturer or packer of the liquid. The unscrewing of the cap and opening of the vessel can not be accomplished without breaking this seal, a guaranty of the quality and quantity of the contents of the vessel being afforded thereby.

It is claimed that it can be turned out in tin or a special composition to be used with wines or other similar liquors at half the price of any other stopper now on the market.

PERUVIAN VICUNA DISAPPEARING.

THE HERDS OF THIS VALUABLE MOUNTAIN ANIMAL ARE DIMINISHING.

Consul-General Samuel M. Taylor, in a report from Callao, says that the graceful vicuna, one of the most useful members of the Peruvian fauna, is in danger of disappearing from the elevated plains of the Andes, and this seems to be so much realized that steps are to be taken to prevent their total extinction. Mr. Taylor adds:

Formerly it was nothing unusual for travelers in the Sierra to see great herds of the vicuna moving about on the high plateaus, but now, in consequence of their being so persistently hunted, most of them have emigrated to higher altitudes, which are regions more arid and more rigorous in climate. Here many perish, not from the effects of the snow and hail storms prevailing there and which they are very well able to stand, but from sheer starvation, vegetation being extremely scarce at these great heights.

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In the summer season the vicunas resort to the valleys in quest of food, which they are always able to find in abundance on springy ground and on the banks of the small streams and lakes. But these, unfortunately, are the places where they are usually hunted, with result that they are continually taking fright and escaping to the higher regions, where, fearing to return, they perish of inanition, wandering around the dreary peaks of the great mountains.

According to figures issued, the exports of vicuna wool and hides from Peru during the last five years are as follows:

Year.	Wool.		Hides.	
	Pounds.	*Value.*	*Pounds.*	*Value.*
1902	4,078	$1,773	2,604	$660
1903	7,864	3,421	3,832	1,866
1904	8,618	3,739	4,066	2,193
1905	3,984	4,502	1,334	1,078
1906	11,102	12,092	3,334	1,297
Total	35,646	25,527	15,260	7,094

During the past two years the wool, which is a fine article of a reddish brown color, has been much in demand in England at from $1 to $1.25 per pound, but the supply is rapidly diminishing. The hides with the wool on are also in demand for rugs and are valued at from $15 to $50 for each rug, according to the care in selection.

BRITISH AUTOMOBILE ACCIDENTS.

NUMBER OF PERSONS KILLED AND INJURED LAST YEAR BY MOTOR CARS.

Consul Frank W. Mahin writes from Nottingham that the secretary of the Highways Protection League states that, according to accounts in the press, 932 automobile accidents occurred in Great Britain in 1907, killing 215 and injuring 675 people. For these accidents and other motor-car offenses 2,270 people were summoned, of whom 2,046 were convicted. As the number of automobiles in use is estimated at 45,000, it would seem that one in about every 22 did something illegal last year. Occasionally the same driver is summoned more than once, but his license is usually revoked if it happens more than twice.

EXTERMINATION OF MOSQUITOES.

CACTUS PASTE AS A SUBSTITUTE FOR PETROLEUM IN WARM CLIMATES.

Consul William Henry Bishop, of Palermo, Italy, transmits the following information relative to experiments made by the chief of the sanitary service at Gaboon, French Africa, with the cactus as a substitute for petroleum for the extermination of mosquitoes in warm climates:

The thick, pulpy leaves of the cactus, cut up in pieces, are thrown into water and macerated until a sticky paste is formed. This paste is spread upon the surface of stagnant water, and forms an isolating layer which prevents the larvæ of the mosquitoes from coming to the top to breathe and destroys them through asphyxiation.

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It is true that petroleum can do the same service, but in warm climates petroleum evaporates too quickly and is thus of little avail. The mucilaginous cactus paste, on the contrary, can hold its place indefinitely, lasting weeks, months, or even an entire year; and the period of development of the larvæ being but about a fortnight, it has the most thorough effect.

FOOD-COOKING ECONOMY.

NONPATENTED DUTCH DEVICE FOR SAVING FUEL.

Consul Henry Morgan, of Amsterdam, sends the following report of a device for cooking foodstuffs without fuel:

A simple device for cooking foodstuffs without fuel has been in general use in Holland for the past two years among the working classes of people and may be of general interest to the people of the United States. The device consists of a wooden box, padded with hay to a thickness of about 2½ inches on the sides, bottom, and cover. The box can be made of any dimension required. The food after being partially cooked is placed on hot plates in an enameled utensil made of a size to fit snugly against the upholstering of the box. The lid of the box is then closed and the heat generated therein by the partially cooked food not only continues the process of cooking the food thoroughly, but keeps it warm for a number of hours. It is said to give great satisfaction. The device is not protected in any way by patents and can be made by anyone.

PHONOGRAMS IN SWITZERLAND.

POSTAL DELIVERY OF WIRE MESSAGES AND RATES CHARGED.

Consul Francis B. Keene, of Geneva, furnishes the following brief statement concerning the Swiss use of the telephone and telegraph:

The telephonic service in Switzerland is divided into eleven sections, one of them including this entire consular district of Geneva. In any one of the eleven sections everybody has the right to have transmitted, by writing and by postman, messages intrusted by telephone to the central office of the telephone, or given in writing to any telegraph office.

"Phonograms" must be sent by the administration to any consignee, a subscriber to the telephone in the same section; or to any consignee if domiciled within the same section.

"Phonograms" are subjected to a fixed tax of 20 centimes, plus 1 centime for each word (3.8 cents plus 0.19 cent), whereas telegrams pay a fixed tax of 30 centimes, plus 2½ centimes for each word (5.7 cents plus 0.48 cent) in the whole country.

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CONSULAR FEES.

RATES PRESCRIBED BY THE PRESIDENT.

Following is the tariff of fees prescribed by the President, under the act for the reorganization of the consular service, to be charged by consular officers of the United States. All consular charges must be in strict accordance with and be collected in gold or its equivalent, and no fee or compensation will be collected for any service not covered by this tariff. American vessels and seamen are exempted by law from the payment of consular fees. Foreign-built vessels, unregistered, owned by American citizens, are not exempt from the payment of the prescribed fees.

Nature of service.	Fee.
Miscellaneous services.	
1. Certificate to invoice, including declaration, in triplicate or quadruplicate, covering either importations or transit shipments, including any additional declaration or certificate not otherwise provided for which is required by law or regulations for use in connection with the entry of the wares or the forwarding of the same in bond	$2.50
2. Invoice of returned American goods	1.00
3. Extra certificates or declarations as above described, including immigrant's oath (Form No. 128), when issued without an invoice certificate, each	1.00
4. Certificate to extra copies of invoices, each	1.00
5. Certificate of disinfection, in triplicate or quadruplicate	2.50
6. Landing certificate, including oaths of master and mate, and the complete execution of the certificate	2.50
7. Sealing cars coming from Canada or Mexico, for each manifest in quadruplicate with the consul's certificate, including sealing of each car, vessel, bale, barrel, box, or package	1.00
8. Issuing a passport—Form No. 9	1.00
9. Visaing a passport—Form No. 10	1.00
10. Visaing a Chinese passport or certificate	1.00
11. Marriage certificate, in duplicate, Form No. 87	1.00
12. For taking into possession the personal estate of any citizen who shall die within the limits of a consulate, inventorying, selling, and finally settling and preparing or transmitting, according to law, the balance due thereon, $2 for each $100 of value or fraction thereof. If part of such estate shall be delivered over before final settlement, $1 for each $100 of value or fraction thereof to be charged on the part so delivered over as is not in money, and $2 for each $100 of value or fraction thereof on the gross amount of the residue. If among the effects of the deceased are found certificates of foreign stock, loans, or other property, $1 for each $100 of value or fraction thereof on the amount thereof. No charge will be made for placing the official seal upon the personal property or effects of such deceased citizen, or for breaking or removing the seals.	
13. For each certificate of protection, semsar, or certificate of employment issued at Tangier	2.00
Services to vessels and seamen.	
14. Bill of health, in duplicate[a]	5.00
15. Supplemental bill of health, in duplicate[a]	2.50
16. For receiving and delivering ship's register and papers, including consular certificates, as prescribed in Form Nos. 13 and 14, $1 for each 100 tons or fraction thereof, registered measurement (net), of the vessel for which the service is performed, if under 1,000 tons; but for American vessels running regularly by weekly or monthly trips, or otherwise, to or between foreign ports, this tonnage fee will not be charged for more than four trips in a year; and tonnage fees shall not be exacted for any vessel touching at or near ports in Canada on her regular voyage from one port to another within the United States, unless some official service required by law shall be performed.	

[a] Foreign war vessels are exempt from the payment of fees for bills of health.

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Foreign Weights and Measures, with American Equivalents—Continued.

Denominations.	Where used.	American equivalent.
Quintal	Greece	123.2 pounds.
Do	Mexico	101.46 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¼ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acre.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9303 inches.
Sho	do	1.6 dry quarts.
Standard	St. Petersburg (lumber measure)	165 cubic feet.
Stone	Great Britain	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.245 acre.
Tierce	Newfoundland	300 pounds.
To	Japan	2 pecks.
Tola	do	180 grains.
Tonde	Denmark (cereals)	8.94783 bushels.
Tondeland	Denmark	1.36 acres.
Tsubo	Japan	35.581 square feet.
Tsun	China	1.41 inches.
Tun	Newfoundland (cod oil)	306 gallons.
Tunna	Sweden	4.5 bushels.
Tunnland	do	1.22 acres.
Vara	Argentina	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	32.992 inches.
Do	Paraguay	34 inches.
Do	Spain	0.99081 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Venetian pound	Greece and Mediterranean countries	1.05 pounds.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

Metric Weights and Measures, with Equivalents.

Units.	Equivalents.	Units.	Equivalents.
WEIGHTS.		**LIQUID MEASURE.**	
Milligram ($\frac{1}{1000}$ gram)	0.0154 grain.	Milliliter ($\frac{1}{1000}$ liter)	0.0338 fluid ounce.
Centigram ($\frac{1}{100}$ gram)	0.1543 grain.	Centiliter ($\frac{1}{100}$ liter)	0.338 fluid ounce.
Decigram ($\frac{1}{10}$ gram)	1.5432 grains.	Deciliter ($\frac{1}{10}$ liter)	0.845 gill.
Gram	15.432 grains.	Liter	1.0567 quarts.
Decagram (10 grams)	0.3527 ounce avoirdupois.	Decaliter (10 liters)	2.6417 gallons.
Hectogram (100 grams)	3.5274 ounces avoirdupois.	Hectoliter (100 liters)	26.418 gallons.
Kilogram (1,000 grams)	2.2046 pounds avoirdupois.	Kiloliter (100 liters)	264.17 gallons.
Myriagram (10,000 grams)	22.046 pounds avoirdupois.	**MEASURES OF LENGTH.**	
Quintal (100,000 grams)	220.46 pounds avoirdupois.	Millimeter ($\frac{1}{1000}$ meter)	0.0394 inch.
Millier or tonneau—ton (1,000,000 grams).	2,204.6 pounds avoirdupois.	Centimeter ($\frac{1}{100}$ meter)	0.3937 inch.
DRY MEASURE.		Decimeter ($\frac{1}{10}$ meter)	3.937 inches.
Milliliter ($\frac{1}{1000}$ liter)	0.061 cubic inch.	Meter	39.37 inches.
Centiliter ($\frac{1}{100}$ liter)	0.6102 cubic inch.	Decameter (10 meters)	393.7 inches.
Deciliter ($\frac{1}{10}$ liter)	6.1023 cubic inches.	Hectometer (100 meters)	328 feet 1 inch.
Liter	0.908 quart.	Kilometer (1,000 meters)	0.62137 mile (3,280 feet 10 inches).
Decaliter (10 liters)	9.08 quarts.	Myriameter (10,000 meters)	6.2137 miles.
Hectoliter (100 liters)	2.838 bushels.	**SURFACE MEASURE.**	
Kiloliter (1,000 liters)	1.308 cubic yards.	Centare (1 square meter)	1.550 square inches.
		Are (100 square meters)	119.6 square yards.
		Hectare (10,000 square meters).	2.471 acres.

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